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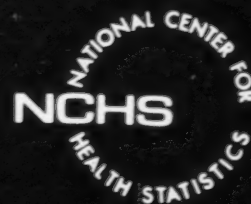
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ABSTRACT

This report presents information on the interrelation of selected behavioral characteristics of children six to eleven years of age as obtained in the Health Examination Survey of 1963-65. Data were obtained from the parents on a self-administered medical history questionnaire and a more detailed supplemental medical history administered by a Survey field representative. From these data assessments were made of the extent of association among a number of behavioral variables: early behavior development, sleep-related behavior, eating habits and behavior, peer relationships, abnormal fears, behavioral traits (temper and tension), degree of responsibility in the home, and participation in organized activities in and outside of school. The relationships among these aspects of children's behavior generally were of a low order of magnitude. However, some strong associations were found which reached statistical significance; where possible, comparisons were also made with findings from previous studies. Tables provide detailed data, and charts and tables accompany the text. Appendices include facsimiles of parts of the questionnaires used in the survey. (Author/SES)

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Relationships Among Parent Ratings of Behavioral Characteristics of Children United States

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Series 11 reports present findings from the National Health Examination Survey, which obtains data through direct examination, tests, and measurements of samples of the U.S. population. Reports 1 through 38 relate to the adult program. Additional reports concerning this program will be forthcoming and will be numbered consecutively. The present report is one of a number of reports of findings from the children and youth programs, Cycles II and III of the Health Examination Survey. These reports, emanating from the same survey mechanism, are being published in Series 11 but are numbered consecutively beginning with 101. It is hoped this will guide users to the data in which they are interested.



Vital and Health Statistics-Series 11-No.121

Data from the
NATIONAL HEALTH SURVEY

Series 11
Number 121

ED 073384

Relationships Among Parent Ratings of Behavioral Characteristics of Children United States

Interrelations of specific behaviors, traits, degree of responsibility, and participation in organized activities for children, by age and sex.

DHEW Publication No. (HSM) 73-1603

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Public Health Service

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National Center for Health Statistics
Rockville, Md. October 1972

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In accordance with specifications established by the National Health Survey, the Bureau of the Census, under a contractual agreement, participated in the design and selection of the sample, and carried out the first stage of the field interviewing and certain parts of the statistical processing.

Vital and Health Statistics-Series 11-No. 121

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RELATIONSHIPS AMONG PARENT RATINGS OF BEHAVIORAL CHARACTERISTICS OF CHILDREN

James T. Baird, Jr., and Jean Roberts, *Division of Health Examination Statistics*

INTRODUCTION

This report presents data on selected behavioral characteristics of children 6-11 years of age in the noninstitutional population of the United States as obtained in the Health Examination Survey of 1963-65. This study is the third of a series of reports which provide the first national baseline data on key behavioral characteristics of children as rated by their parents and teachers.^{1,2} The distributions of the behavioral variables analyzed in this report were evaluated with regard to differentials by age and sex in a previous report.¹ The present report emphasizes the interrelationships among the behavioral variables.

Three different survey programs are used to accomplish the objectives of the National Health Survey.³ The Health Interview Survey, which obtains information by household interview among samplings of the U.S. population, is concerned primarily with the impact of illness and disability upon the lives and actions of people. Surveys by the Health Resources Division obtain health data as well as health resource and utilization information through surveys of hospitals, nursing homes and other resident institutions, and personnel working in the health and medical occupations. The third major program of the National Health Survey is the Health Examination Survey.

In the Health Examination Survey, data are collected through direct physical examinations, tests, and measurements performed on the sample population selected for study. This is the most accurate way to obtain definite diagnostic data on the

prevalence of certain medically defined illnesses. It is the only way to secure information on unrecognized and undiagnosed conditions as well as a variety of physical, physiological, and psychological measurements within the population. In addition, it makes possible the study of relationships among the various examination findings and between these findings and certain demographic and socioeconomic factors.

The Health Examination Survey is carried out as a series of separate programs referred to as "cycles." Each cycle is concerned with some specific segment of the total U.S. population, usually a particular age group, and with certain specified aspects of health of that subpopulation. In the first cycle data were obtained on the prevalence of certain chronic diseases and on the distributions of various body measurements and other characteristics of the defined national adult population. A complete description of the first cycle program has been published.^{4,5}

For the second program, or cycle, of the Health Examination Survey, on which this report is based, a probability sample of the Nation's noninstitutionalized children 6-11 years of age was selected and examined. The examination focused particularly on health factors related to growth and development, and also screened for heart disease, congenital abnormalities, ear-nose-throat conditions, and neuromusculo-skeletal abnormalities. It included an examination by a pediatrician; examination by a dentist; tests administered by a psychologist; and a variety of tests, procedures, and measurements by technicians. A comprehen-

sive description of the survey plan, sample design, content of the examination, and operation of the survey has been presented in a previous report.⁶

The second cycle of the Health Examination Survey extended from July 1963 to December 1965. Of the 7,417 children selected for the sample, 7,119 (96 percent) were examined. This national sample is representative of the roughly 24 million children 6-11 years of age in the United States living outside of institutions at the time of the survey.

A standardized single-visit examination was given each child by the examining team in the specially designed mobile units used for the survey. Prior to the examination, information was obtained from a parent of the child, including demographic and socioeconomic data on the household members, as well as a medical history and behavioral data on the child to be examined. Ancillary data on school behavior, adjustment, and health problems were obtained from the school attended (or last attended). Birth certificates for verification of the child's age were also obtained.

A summary of the sample design, reliability of the data, and sampling error estimation procedures is contained in appendix I.

THE BEHAVIORAL QUESTIONS

The behavioral findings presented in this report were obtained from a parent or guardian, usually the child's mother. Two survey instruments were used as sources of the behavioral information as assessed by the parent. The largest component of this information was obtained from the Child's Medical History questionnaire which was left in the home of the sample child by a U.S. Bureau of the Census interviewer to be completed by the parent. Personal or more difficult items requiring probe questioning to aid in uniformity of interpretation were recorded on the supplemental Medical History form by the Health Examination Survey field representative who interviewed the parent about 2 weeks later. At the time the Health Examination Survey field representative was obtaining this additional information, she also reviewed the Child's Medical History and answered questions that the parent may have had regarding that form.

The Child's Medical History questionnaire included three items on early developmental history—the age when he spoke his first real word, the age when he first walked by himself, and the parent's rating of the relative speed with which the child learned to do certain things—such as eating by himself or talking. Questions were also included on sleeping or sleep-related habits or behavior. The item on the age when the child first spoke was not used in the analysis of this report because it was substantially more frequently answered as "unknown" than any of the other behavioral questions and hence might introduce a substantial cumulative bias when cross-classified with other variables.

On the interviewer-administered supplement, questions were asked about eating habits or problems, responsibilities in the home, peer relations, specific problem behaviors, the degree of adjustment, extent of outside activities, and the extent of time spent in various specific activities in and outside the home such as watching television, listening to the radio, reading, playing, and working or doing chores. Questions on the supplemental Medical History form ranged from ones requiring recall of specific recent and earlier events or practices to those involving parents' ratings of their perception of certain aspects of the child's behavior. (The specific questions from these two questionnaires on which this report is based are reproduced in appendix II.)

FINDINGS

Early Behavior Development

The age at which children tend to begin to walk unaided has been studied by various investigators, typified by the work of Gesell and Amatruda.⁷ Recent NCHS findings reported by Roberts and Baird¹ essentially agreed with those of earlier studies. The NCHS report demonstrated on the basis of parents' reports that a "typical" or "average" child in the United States achieved this level of motor development slightly after his first birthday with a tendency for girls to begin walking somewhat earlier than boys. The present analysis considered the extent to which this characteristic is related to learning speed as evaluated by the

child's parent (question 18 on the Child's Medical History questionnaire). Table 1 shows this association relative to other children among the national population of children 6-11 years of age. A positive association may be seen between the rate of motor development or coordination and general learning speed. Faster learners comprised about 30 percent of the children who began to walk before 1 year of age compared with less than 11 percent of those who started walking after their first birthday. Slower learners showed a reverse pattern with respect to motor development. They comprised nearly 30 percent of those who began walking at a later age but less than 2 percent of those walking before age 1.

The relationship between these two characteristics as measured by the chi-square test is, of course, highly significant—for the data of table 1, $\chi^2 = 102.7, p < .0001$. In this report where statistical significance of a relationship is tested using the chi-square statistic, the estimation of the sampling variance has been modified to relate to the complex sample design of the Health Examination Survey, and, hence, to the defined national population. Details of the test are given in appendix I.

With the single exception of the relation of learning speed to involvement in organized activities discussed in a later section of this report, these two early developmental variables appeared to be remarkably unrelated to other behavior characteristics.

Sleep Behavior and Arrangements

Sleep patterns, habits, and related behavior have been the subject of extensive research to determine the relationship of sleep to mood, behavior, memory, and general development as well as to physical and mental health and illness. Sleep loss has been found to induce a variety of symptoms in otherwise normal people. Sleep disorders appear to arise from many different causes involving behavior, training, the environment, body chemistry, and brain activity.^{8,9}

Sleep behavior and factors which may possibly directly affect sleep were assessed by parents in a series of six evaluations on the questionnaires used in this study (Child's Medical History questions 58-62 and supplemental Medical History

question 24). An earlier publication¹ showed that about one child in five was found to have been a "good bit of trouble in getting to go to bed at bedtime" and that corresponding trouble occurred in getting the child to go to sleep after going to bed, while taking a nap when little was reported for about one child in eight, without significant age or sex differentials being observed among the national population.

The present analysis of the extent to which these problems are interrelated is shown in tables 2-4. The patterns are remarkably consistent for both boys and girls. The correlation is positive between each pair of variables but approaches statistical significance only in the case of girls relative to trouble getting them to go to bed, and to go to sleep after going to bed. Among girls whose parents reported difficulty in getting them to go to sleep, 58 percent also had concurrent difficulty in getting them to go to bed. The corresponding percentage was 17 percent for girls whose parents reported no difficulty in getting them to go to sleep. The statistical significance, however, was marginal ($\chi^2 = 3.35, p < .06$). For boys, the magnitude of the association was somewhat lower ($\chi^2 = 1.56, p < .08$), with the percentages corresponding to those cited above being nearly 55 percent and 18 percent, respectively.

Mass media effect.—Exposure of children to media presentations in the form of TV, radio, and/or movies has been considered by their parents to have some effect on ability to get to sleep, or to sleep well, for an estimated one child out of four in the national population aged 6-11 years, without significant variation by sex or age within this age range.¹ This is in contrast to the essentially negative findings concerning getting children to go to sleep after TV viewing from studies of Furu,¹⁰ Himmelweit et al.,¹¹ Maccoby,¹² and others¹³ using a variety of methods including parent ratings, interviews with children, and diaries. These were based on smaller and more selective groups of children than those on which the national norms were based. Among children in the United States, the percentage for whom TV, radio, or movies were deemed an influence on their ability to sleep well, or to get to sleep remains relatively uninfluenced by age, sex,¹ or, on the basis of the present analysis, by sleeping arrangements at home, frequency of sleeping away from home without

family, frequency of sleepwalking, or trouble experienced in getting the child to go to bed or to take a nap when little.

The low order of relationship between media effects on sleep with some of the variables considered in the preceding paragraph is shown in table A. Here, a measure of the degree of association among these simple dichotomous classifications of the variables was obtained from the

Table A. Correlation between sleep affected by TV, radio, or movies and three selected variables for children 6-11 years of age: United States, 1963-65

Variable	r
"A good bit of trouble, over a considerable period of time, getting child to..."	
Go to bed at bedtime as determined by parent	.07
Go to sleep after having gone to bed	.09
Take a nap when little	.05

coefficients of correlation, rather than from the chi-square test-used primarily elsewhere in the report to determine the presence or absence of association. The estimations of the sampling variability of the correlation coefficient used in assessing statistical significance of the relationship in this report have been obtained through a modified procedure which reflects the complex statistical design of the survey as described previously.¹⁴

The single exception to the absence of association between such media impact on sleep and the sleep-related variables analyzed in this study occurred in the case of the frequency of unpleasant dreams, where a clear-cut and statistically significant relationship is evident. Children who frequently had unpleasant dreams were more likely to be rated by their parents as having their sleep affected by mass media than those who had such dreams only infrequently, and both groups were substantially more often considered as having their sleep so affected than those who never had such dreams, as shown in table 5 and figure 1. Although there is no sex differential in the pattern

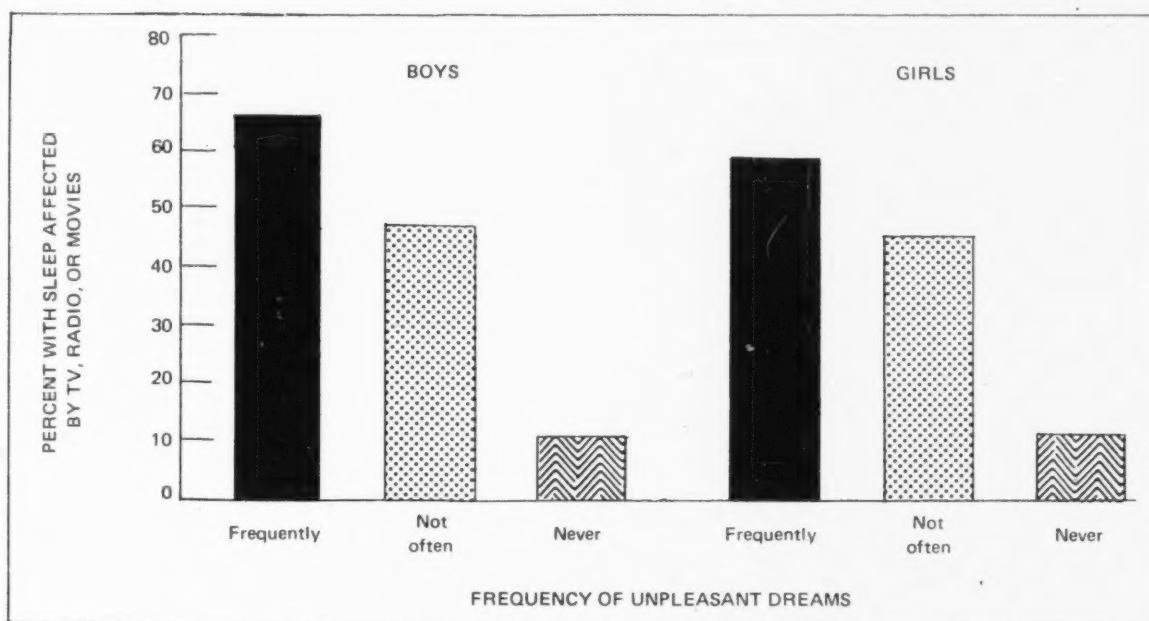


Figure 1. Percent of boys and girls 6-11 years of age with sleep affected by TV, radio, or movies, by frequency of unpleasant dreams: United States, 1963-65.

shown in figure 1, statistical significance between the two variables (unpleasant dream frequency and reported as having sleep affected) is clear cut ($\chi^2 = 30.8$ for boys and 25.5 for girls, $p < .001$ for both boys and girls).

Dreams-sleepwalking.—Frequency of unpleasant dreams was also related significantly to frequency of sleepwalking among children in the United States in the age range studied on the basis of the medical histories elicited from the parents of the examined children. The data in table 6 showing the extent of this relationship are of interest in the context of the work of Jacobson et al.¹⁵ and others¹⁶ who have shown that in selected series of subjects, somnambulism tends to occur in a period of deep sleep not currently thought to be associated with intense dreams. While 10 percent of children in the national study were reported to have done some sleepwalking, only about 1 percent did so frequently.¹ The data in table 6, however, are sufficient to clearly establish the statistical significance of the relationship ($\chi^2 = 35.3$ for boys and 24.4 for girls, $p < .001$ for both boys and girls). Somewhat more than one-half of the nonsomnambulists had a history of never having had unpleasant dreams or nightmares, but only about one somnambulist in five had this charac-

teristic. These proportions were quite consistent among both boys and girls.

Sleeping arrangements.—The extent to which children share bedrooms and beds with siblings, parents, and others has been evaluated in detail in a previous report.¹ Briefly, it was found that about one child in four sleeps alone in a separate room, with this proportion increasing with age. Also, about one child in four shares a bed with one or more siblings, while an additional 40 percent share a bedroom with them but sleep in separate beds. In the present report the degree of independence of children with respect to their sleeping arrangements was studied in relation to the variables characterizing sleep behavior—frequency of bad dreams; sleepwalking history; sleep affected by TV, radio, or movies; trouble getting to sleep, to bed, and to take a nap when little; and frequency of sleeping away from home. With the exception of the last variable, no associations were demonstrable. Figure 2 shows in summary form the detail given in table 7 on the extent of the relationship between sleeping arrangements at home and the frequency with which children made overnight visits away from home without someone from their own family present.

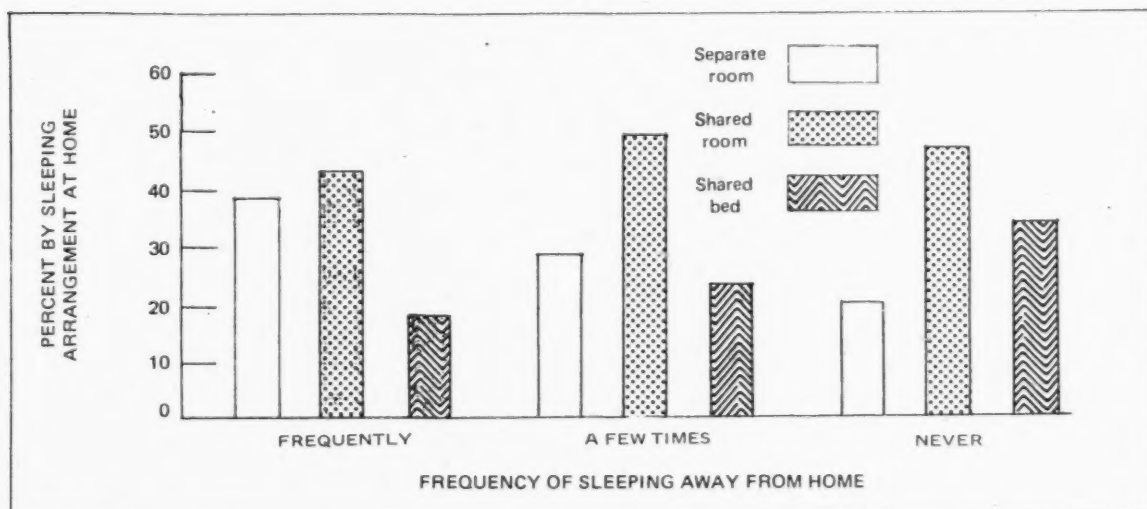


Figure 2. Percent distribution of children 6-11 years of age by sleeping arrangements at home, according to frequency of sleeping away from home without family: United States, 1963-65.

As may be seen, the percentage of children having separate bedrooms tends to increase with increasing frequency of overnight visits away from home, while the converse is true for the percentage of children who share beds with siblings. Statistical significance was not demonstrable at the 5-percent probability level (for the data on which figure 2 is based, $\chi^2 = 8.4$, $p < .07$), and the patterns are essentially the same for boys and girls. This association probably reflects primarily the correlation of both of these variables with age, which has been previously demonstrated,¹ as well as with other factors such as socioeconomic status and cultural patterns.

Although there is no sex differential between these two variables for the relationship indicated by figure 2, a differential by race is demonstrable, as shown by the data on sleeping arrangements in table B. While the percentages of Negro and white children sharing a bedroom with separate beds are about equal, the percentages of white children with separate rooms and shared beds are higher and lower, respectively, than for Negro children. The results approach marginal significance ($\chi^2 = 5.5$, $p < .067$).

Table B. Percent distribution of white and Negro children 6-11 years of age by sleeping arrangements at home, with corresponding standard errors: United States, 1963-65

Sleeping arrangements at home	Percent of children		Standard error of percent	
	White	Negro	White	Negro
Total	100.0	100.0		
Separate room	27.8	12.2	1.3	1.6
Shared room	46.7	44.2	1.4	4.1
Shared bed	24.1	41.4	1.9	4.3
Unknown	1.4	2.2	0.3	0.7

Table C. Percent of white and Negro children 6-11 years of age with selected sleep-related characteristics, with corresponding standard errors: United States, 1963-65

Characteristic	Percent of children		Standard error of percent	
	White	Negro	White	Negro
Parent reports child never experienced bed dreams or nightmares	49.3	68.7	1.4	3.4
Never slept away from home without family	38.9	64.8	1.7	2.5

In addition, race was significantly correlated to two other sleep-related variables—frequency of unpleasant dreams and frequency of having slept away from home without family—as summarized in table C. The marginal racial association among these three sleep-related factors is probably all attributable to the socioeconomic

differences between white and Negro families in the United States at the time of this study.

Eating Habits and Behavior

The previous report¹ showed the extent to which U.S. children's eating habits vary by age and sex with respect to the amount of food eaten, degree of selectivity with food, and extent to which meals are eaten with the family. In general, parents rated their children as eating too much in the case of about one child in 10, with a demonstrable age trend being identified. Selectivity concerning food lessened as age increased, and over 90 percent of the child population in the age range studied usually ate at least two of their daily meals in the company of their family.

In this report the relationships of these eating habits were evaluated for interassociations among themselves and with the other behavioral and developmental traits included in the study. A surprising lack of association was found, both within the general category of eating habits and behavior, and with the other major areas of behavioral development considered including children's use of time and their sleep-related behavior. For example, degree of selectivity with food appears to be unrelated to the amount of food eaten and to the frequency with which meals are eaten with the family, as well as to learning speed, frequency of bad dreams, bed-wetting, number of friends, responsibility in caring for pets, and participation in athletics or religious activities.

The one obvious exception to this occurs when the number of meals per day usually eaten with the family is considered in relation to the number of meals eaten sitting down with others on the day prior to interview. The extremes are: of children eating three meals sitting down with others on the day prior to interview, 96 percent "usually" eat two or more meals with the family, and of children not eating any meal sitting down with others on the day prior to interview, the corresponding percentage is 65 percent usually eating two or more meals with the family. These data are, of course, not independent; they serve primarily to give some degree of reassurance concerning the "randomness" or "typicalness" of the interview day.

A second possible exception to this set of essentially negative findings occurs in the case of degree of selectivity with food as related to tension and nervousness. Figure 3 reflects the possible association between these two variables in the sense that children who tend to be more nervous and high strung also tend to exhibit a greater degree of selectivity and to be more "fussy" in their selection of food. This apparent relationship, as shown in detail in table 8, while not dramatic, is consistent for both boys and girls. The data are not statistically significant at the 5-percent probability level ($\chi^2_9 = 4.29, p < .83$).

Peer Relationships

The degree of social development of children with respect to their peer relationships was rated

by their parents in questions 11-15 of the supplemental Medical History. It has been demonstrated in various studies^{1, 17-19} that age and sex are highly significant factors in the development of such peer relationships. The extent to which these are related to the social development of children age 6-11 years throughout the United States as measured by parents' evaluation of number of friends, willingness of offspring to make new friends, and ability to get along with other children, has been previously described.¹ In this report, the extent of the interrelationships of the last three variables is considered as well as their relation to other aspects of behavior.

Tables 9 and 10 show that two of the characteristics—willingness of children to make new friends and their ability to get along with other children—seem to have about the same power of

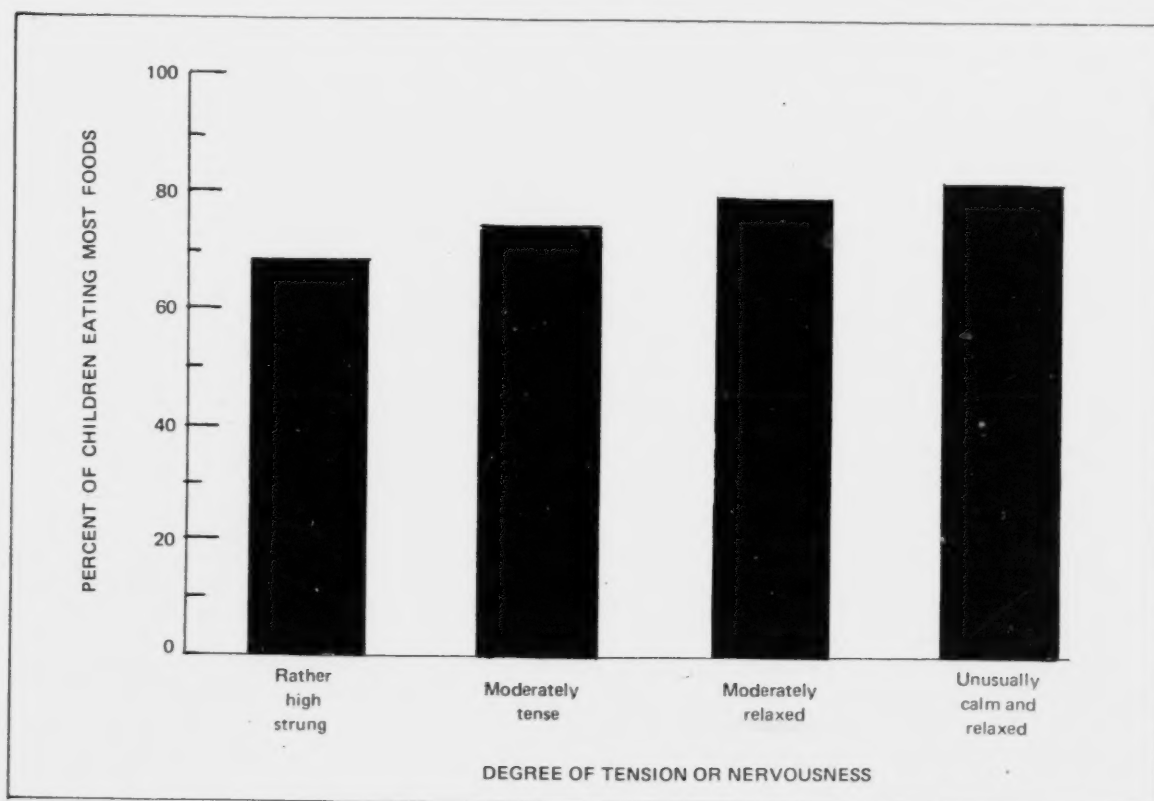


Figure 3. Percent of children 6-11 years of age reported as eating nearly all kinds of food and disliking only a few kinds, by degree of tension or nervousness: United States, 1963-65.

discrimination with regard to number of friends, as the response to the latter question was scaled in this study: "only a few," "a good number," and "very many." The percentage of children reported as having many good friends ranged from 4 percent among children who were considered by their parents to have difficulty in getting along with many children, to 22 percent among children who were rated as generally well liked (table 10). The relationship between number of friends and willingness to make new friends was quite similar. The percentage of children reported as having many good friends was only 6 percent among "somewhat shy" children, and increased to 22 percent among children who were considered by their parents to be very outgoing and capable of making friends easily (table 9). The relationships are statistically significant in both cases—for the latter data (in table 9), for example, $\chi^2_4 = 20.7, p < .001$ —and the patterns are quite similar for both boys and girls.

An association of nearly the same order of magnitude was also found between children's ability to make new friends and to get along with other children, as may be seen in table D, though this relationship is not statistically significant at the 5-percent probability level. Here, about one child in four was rated by his parent as below average—either somewhat shy or having difficulty getting along with other children or both. Those who were considered well liked were substantially more likely to be very outgoing than shy, but children who had difficulty getting along with others were about as likely to be shy as not. The above pattern was essentially the same for both boys and girls.

Table D. Percent of children 6-11 years of age rated according to ability to get along with other children and willingness to make new friends: United States, 1963-65

Willingness to make new friends	Ability to get along with other children		
	Has difficulty with many children	As well as most children	No difficulty—is well liked
	Percent of children		
Somewhat shy	1.6	12.6	7.6
About average	1.3	20.1	13.2
Very outgoing—makes friends easily	1.3	16.9	25.4

Previous investigators have similarly found among personality and social characteristics of children contributing to differential status that friendliness

and sociability are associated with acceptance^{20, 21} by their peers while social indifference, withdrawal, rebelliousness, and hostility are attributes of low-status or rejected children.^{22, 23}

Temper-nervousness.—Children's ability to get along with other children was found to be the only aspect of their peer relationships showing some association with temper and nervousness traits. The extent of coexistence between the ability to get along with other children and the degree of temper control is shown in table 11. The percentage of children rated as "no difficulty—is well liked" in their ability to "get along" with other children increased from 34 percent among children who were also considered by their parents to have "a very strong temper, losing it easily," to 59 percent among children who "hardly ever get angry or show any temper." Although the trend observed in table 11 is logical and consistent, clear-cut statistical significance at the 5-percent probability level cannot be demonstrated on the basis of these data ($\chi^2_6 = 9.0, p < .17$). The findings were essentially the same for both boys and girls. A similar pattern of relationship was found between the traits of ability to get along with others and degree of tension or nervousness, consistent with previous research studies among children showing the greater the tension or anxiety the lower their social acceptance by their peers.²⁴⁻²⁶

Other Specific Behaviors

The prevalence of certain critical problems or potential problems in the behavioral and emotional development of children 6-11 years of age in the United States as estimated from this survey has been established previously¹ and compared with available research findings.²⁷⁻²⁹ The relative frequencies of these problems were shown to be: history of running away from home (2 percent); problem in talking (8 percent); thumbsucking (10 percent); bed-wetting (15 percent); fear of being left alone in the dark (23 percent); and history of significantly disturbing or upsetting experience (26 percent).¹

These attributes were evaluated in the present report for possible statistical relationships with each other, as well as with ratings of early development, sleep-related behaviors,

eating habits, and peer relationships. The only definitive relationships found were those between certain sleep-related behaviors and fear of being left alone in the dark or a history of a disturbing experience.

Fear of dark.—Fear of being left alone in the dark was found associated with the frequency of unpleasant dreams or nightmares for children to the extent shown in table 12. The correlation of the former with age of child and, to a lesser extent, with sex, has been discussed previously.¹ For children of this age afraid to be left alone in the dark, 57 percent were also characterized as subject to unpleasant dreams or nightmares to some extent. Among children not afraid to be alone in the dark, 39 percent were subject to unpleasant dreams. While a sex differential is not clearly evident here, the relationship is highly significant for boys ($\chi^2 = 26.2, p < .00001$), but closer to borderline significance for girls ($\chi^2 = 7.0, p < .030$).

The association between fear of being left alone in the dark and the influence of TV, radio, or movies on how well the child sleeps is equally striking (figure 4 and table 13). Here the correlation is statistically significant, with the level of association about the same for both boys and girls. This finding is not inconsistent with the data of Renshaw and others³⁰ who demonstrated increased restlessness during sleep after seeing movies

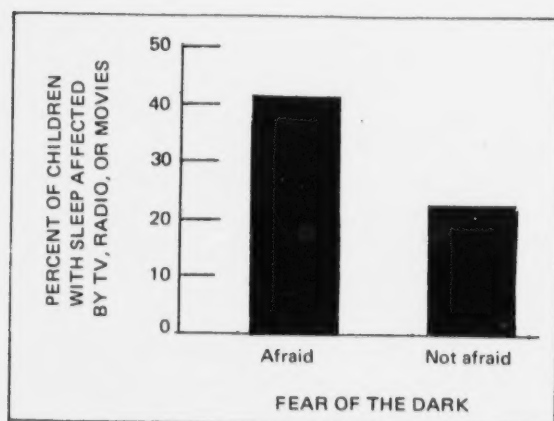


Figure 4. Percent of children 6-11 years of age with sleep affected by TV, radio, or movies, by fear of being left alone in dark: United States, 1963-65.

Table E. Percent of boys and girls 6-11 years of age for whom parents reported disturbing experience by degree of tension or nervousness: United States, 1963-65

Degree of tension or nervousness	Percent with disturbing experience		
	Total	Boys	Girls
Rather high strung	58.2	58.9	57.4
Moderately tense	71.3	72.4	70.0
Moderately relaxed	80.0	79.8	80.1
Unusually calm and relaxed	83.6	79.0	88.6

in selected child populations of a pre-TV generation.

The data of the survey also indicate a possible association between fear of the dark and sleeping arrangements as shown in table 14. The relationship is logical and consistent, although statistical significance cannot be clearly demonstrated ($\chi^2 = 15.0$ and $9.5; p < .05, p < .30$ for boys and girls, respectively). The inference one might make from these data is that fear of the dark may be associated with the sharing of a bedroom with a parent, but not with a brother or sister; and it may predispose to or result from sharing a bed with any of these.

Disturbing experience.—The extent to which parents recalled and reported unusual traumatic happenings experienced by their children has been shown to be subject to considerable bias of parent recall.¹ The relatively high proportion of children for whom such a history was reported (26 percent) reflects principally recent events occurring within 2 years prior to the interview. In the present analysis the only substantive correlate of this variable implied by the data was found with the child's degree of tension or nervousness (table E). Here, though the trends are consistent and essentially the same for both boys and girls, statistical significance at the 5-percent probability level could not be demonstrated.

Traits

In this survey about 17 percent of the children were characterized by their parents as high strung, tense, or nervous with a similar proportion evaluated as having a very strong temper which they lost easily (questions 18 and 19, supplemental Medical History). The degree to which age and sex were related to these two behavioral traits has been evaluated in a previous report.¹ The extent to which these two traits are interrelated is shown in table 15. Nearly half (43 percent)

of those children classified as having a strong temper were also considered rather high strung compared with 15 percent or less of those with a greater degree of temper control. Among children who hardly ever get angry, more than one-fifth (21 percent) were also considered unusually calm or relaxed compared with less than 9 percent of those with stronger tempers. The relationship between tension and temper shown in table 15 is, of course, highly significant statistically ($\chi^2_6 = 46.3, p < .00001$).

Although these traits can be identified with selected peer relationships and eating behavior, previously discussed, and, to some extent, with use of time and responsibilities, their primary and more manifest association appeared to be with selected variables of sleep behavior.

Both degree of tension and degree of temper are related to frequency of unpleasant dreams, but the association is somewhat more definitive in the case of degree of tension. As shown in detail in table 16, the percentage of children having frequent or occasional bad dreams or nightmares ranges from 50 percent among high-strung, tense, and nervous children, to 31 percent among children who are unusually calm and relaxed. The statistical significance of this relationship is, however, borderline ($\chi^2_6 = 12.7, p < .05$).

Correspondingly, trouble in getting children to go to bed tends to be related to both degree of tension and degree of temper, but more so to the latter. The relatively consistent association of degree of temper and trouble getting children to go to bed among both boys and girls is not, however, statistically significant at the 5-percent level ($\chi^2_6 = 12.7, p < .058$). The detail is shown in table 17.

Three instances of possible (but unconfirmed in the sense of statistical significance) relationships of these traits with characteristics of sleep behavior are summarized in table F. Only data for degree of tension or nervousness are shown,

Table F. Percent of children 6-11 years of age with selected sleep behavior characteristics, by degree of tension or nervousness: United States, 1963-65

Degree of tension or nervousness	Percent of children with		
	Trouble getting them to sleep	Sleep affected by TV, radio, or movies	Trouble getting them to take a nap when little
Rather high strung	18.2	35.6	19.2
Moderately tense	15.8	32.4	14.7
Moderately relaxed	8.6	23.0	9.2
Unusually calm and relaxed	8.8	15.9	9.0

Table G. Percent of children 6-11 years of age who own and care for pets, by race and responsibility for household tasks, United States, 1963-65

Owning and caring for pets by household tasks	Percent of all children			Percent of children with pets	
	All races ¹	White	Negro	White	Negro
<i>One or more household tasks</i>					
Owens a pet and cares for it:	61.3	65.3	36.9	100.0	100.0
Usually	24.5	26.0	15.1	39.8	41.1
Not usually but often	8.9	9.5	5.5	14.6	14.8
Sometimes but not often	20.9	22.2	12.9	34.0	34.9
Not at all	7.0	7.6	3.4	11.6	9.2
Does not own pet	38.7	34.7	63.1		
<i>No household tasks</i>					
Owens a pet and cares for it:	52.7	55.0	36.9	100.0	100.0
Usually	14.4	14.8	12.5	26.9	33.9
Not usually but often	5.3	5.6	2.1	10.2	5.7
Sometimes but not often	21.5	23.0	12.5	41.8	33.9
Not at all	11.5	11.6	9.8	21.1	26.5
Does not own pet	47.3	45.0	63.1		

¹Includes white, Negro, and other races.

but the patterns for degree of temper control are parallel. In each case, the patterns for boys and girls are similar.

Responsibilities

Responsibilities of children were scaled in this study on the basis of parents' responses to questions 9, 10, and 22 on the supplemental Medical History questionnaire. These indicators were the number of tasks that the child was expected to do regularly "as part of the family," whether or not the child had a pet and the extent to which he took care of it, and the amount of time that the child might be expected to spend away from home on a typical day without the parents having definite knowledge of his whereabouts. (The latter variable possibly indicates a negative aspect of responsibility.)

These three aspects of behavior proved to be remarkably uncorrelated among themselves, with one exception. Some slight evidence of a possible association was found between the degree of responsibility for tasks and for pets, though statistical significance could not be demonstrated for it. The data in table G show the low order of this association, reflecting primarily the association of both variables with age. Younger children, aged 6 and 7, are less likely than the older group to have pets or to have regular assigned tasks.¹ The relationship, otherwise, among these three indicators of child responsibility as well as with other variables in the study is essentially nonexistent.

Although a differential effect by race is observable (the percentage of Negro children owning pets is only slightly more than half that among white children), the degree of responsibility exercised in caring for their pets is, effectively, identical among the two racial groups regardless of whether they perform regular household tasks.

Other than organized activities, discussed in the following section, the possibility of a statistical relationship with extent of responsibility occurred only in comparison with sleep behavior. Table 18 shows the extent of the observed relationship between owning and caring for pets and frequency of sleeping away from home. The data in table 18 indicate the possibility of a positive correlation between these two behaviors beyond their association with age—that is, as the level of responsibility in caring for pets tends to increase, so does frequency of sleeping away from home. Statistical significance at the 5-percent probability level could not, however, be demonstrated on the basis of these data.

Organized Activity

An earlier report¹ described the extent to which children engaged in organized activities, as determined from questions 20 and 21 on the supplemental Medical History. Responses from these questions on extracurricular interests in school (such as music, dance, or athletics) or in organized activities outside of school (such as Cub Scouts, Brownies, Little League, or church choir) were classified into five activity groups as shown in table H.

The extent of participation considered in this report is measured in terms of the number of such activities in which the child engaged. Although the parent was also asked the actual amount of time spent by the child in activities outside of school

such as playing, reading, watching TV, listening to the radio, and doing chores (question 23 of the supplemental Medical History), no attempt has been made here to relate these measures of time use and activity.

Concurrent involvement in different types of organized activities was greatest between those in art groups and scout-type groups, religious groups, and athletics, with the respective correlation coefficients being +.19, +.12, and +.10. The extent of participation in art and scouting activities may be seen in table 19. Only for girls is the level of association sufficient to be considered statistically significant at the 5-percent probability level ($\chi^2 = 14.0, p < .01$). Boys participating in artistic activities were about as likely as not to also belong to a scouting group ($\chi^2 = 1.4, p = .85$).

With respect to other aspects of behavior, children who pursued artistic interests with others were more likely than those who did not to have a separate bedroom of their own and to frequently sleep away from home. The relationships (correlations of -.17 and -.17) may be ascribed to concurrent association with age previously identified.¹ The proportion of children with privacy in sleeping arrangements ranged from 23 percent among those involved in no organized artistic activities to 54 percent among those in two such activities (table 20). Here the relationship among girls is statistically significant ($\chi^2 = 11.3, p < .01$), but not among boys ($\chi^2 = 2.1, p < .16$). Although a similar association was found to exist between participation in artistic activities and frequency of sleeping away from home (table 21), statistical significance cannot be demonstrated for it ($\chi^2 = 7.1, p = .14$).

Table I. Percent of children 6-11 years of age with selected behavioral characteristics by extent of membership in classes or clubs in the arts. United States, 1963-65

Membership in classes or clubs in the arts	Percent of children		
	With one or more regular home tasks	With learning speed faster than average	Well liked and with no difficulty in getting along with other children
None	77.4	18.4	43.9
One	87.5	29.1	55.6
Two	88.4	38.7	67.3
Three	95.7	49.3	88.8

Table I summarizes the extent of association between the involvement in artistic activities and three other aspects of behavior for which some relationship, but of a lower order ($r = +.11$), was also found—regular home tasks, learning speed, and ability to get along with other children.

Table H. Percent of children 6-11 years of age belonging to organizations or taking special classes. United States, 1963-65

Activity group	Types of organizations and planned activities included	Percent of children in one or more such organization or activity
Scouting	Boy or Cub Scouts, Girl Scouts, Brownies, Blue Birds	21.9
Art	Music, painting, dancing, and sculpturing	14.2
Religious	Bible school and other religious training or activities including church choir	10.0
Athletics	Little League, bowling, swimming, riding	9.2
Other	All other not specified above	5.0

Children engaged in scouting activities were about as likely as those participating in art-oriented groups to frequently sleep away from home ($r = -.20$) and to have their own bedroom ($r = -.15$). The extent of this relationship is shown for the former in table 22 where it may be seen that 26 percent of those in two scout activities frequently sleep away from home compared with only 7 percent of those not engaged in scouting. The association here is statistically significant ($\chi^2 = 18.2, p < .01$). The degree of association between participation in scouting activities and regular home tasks is of about the same order ($r = +.18$). The association is stronger for girls than for boys (table 23). Hence children participating in scouting activities were somewhat more likely than those who did not to have more freedom in sleep-related behavior and to be given more responsibility in the home (regular tasks), but here again the associations may also be ascribed to concurrent associations with age as previously noted.¹

SUMMARY

This report contains national estimates of the interrelation of selected behavioral characteristics of children 6-11 years of age in the noninstitutional population of the United States, based on findings from the Health Examination Survey of 1963-65. The estimates are derived from parent ratings—some from the self-administered medical history and some from the medical history obtained by a trained interviewer. In the survey, a probability sample of 7,417 children was selected to represent the roughly 24 million non-institutionalized children of this age in the United States at that time. The 7,119 children examined—96 percent of the sample—were found to be closely representative of American children of this age with respect to age, sex, race, region, population density of residence, parents' educational level, and family income.

Assessments were made of the extent of association among aspects of early developmental history, sleep-related behavior, eating habits and

behavior, peer relationships, abnormal fears, degree of tension or nervousness, degree of temper control, extent of responsibility around the home, and extent of participation in extracurricular activities in and outside of school for these children.

The relationships among these various aspects of the behavior of children, as determined in this study, generally tended to be of a low order of magnitude. The strongest associations found, which did reach statistical significance, were:

1. From their early developmental history, children who learned to walk at an early age were more likely than others to have been rated by their parent as generally learning faster than average.
2. With respect to sleep, children who frequently had nightmares were more likely to be considered by their parent to be afraid of the dark and to have their sleep affected by TV, radio, or movies; those who had problems regarding getting to sleep were more likely than others to also be difficult to get to bed (though the association here was significant statistically only for girls); while children who frequently walked in their sleep were more likely than others to also frequently have nightmares.
3. In the area of peer relations, children who were considered very outgoing and those rated as well liked by other children were more likely than others to have a great many children who were good friends.
4. High-strung, tense, or nervous children were more likely than others to also be rated as having a strong temper which they lost easily.
5. As to extracurricular interests in and outside of school, girls taking group lessons in artistic pursuits were more likely than others to also belong to scouts or related groups.

Comparison was made where possible with findings from previous studies.

REFERENCES

- ¹National Center for Health Statistics: Parent ratings of behavioral patterns of children, United States. *Vital and Health Statistics*. Series 11-No. 108. DHEW Pub. No. (HSM) 72-1010. Washington. U.S. Government Printing Office, Nov. 1971.
- ²National Center for Health Statistics: Behavior patterns of children in school, United States. *Vital and Health Statistics*. Series 11-No. 113. DHEW Pub. No. (HSM) 72-1042. Washington. U.S. Government Printing Office, Feb. 1972.
- ³National Center for Health Statistics: Origin, program, and operation of the U.S. National Health Survey. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 1-No. 1. Public Health Service, Washington. U.S. Government Printing Office, Apr. 1965.
- ⁴National Center for Health Statistics: Plan and initial program of the Health Examination Survey. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 1-No. 4. Public Health Service, Washington. U.S. Government Printing Office, July 1965.
- ⁵National Center for Health Statistics: Cycle 1 of the Health Examination Survey, sample and response. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 11-No. 1. Public Health Service, Washington. U.S. Government Printing Office, Apr. 1964.
- ⁶National Center for Health Statistics: Plan, operation, and response results of a program of children's examinations. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 1-No. 5. Public Health Service, Washington. U.S. Government Printing Office, Oct. 1967.
- ⁷Gessell, A., and Amatruda, C. S.: *Developmental Diagnosis: Normal and Abnormal Child Development*. New York. Paul B. Hoeber, Inc., 1941.
- ⁸National Institute of Mental Health: *Current Research on Sleep and Dreams*, by G. G. Luce. PHS Pub. No. 1389. Washington. U.S. Government Printing Office, 1965.
- ⁹Webb, W. B.: Antecedents of sleep. *J. Exper. Psychol.* 53:162-166, 1957.
- ¹⁰Furu, T.: *Television and Children's Life: A Before-After Study*. Tokyo. Japan Broadcasting Corporation, Radio and Television Culture Research Institute, 1962.
- ¹¹Himmelweit, H. T., Oppenheim, A. N., and Vince, P.: *Television and the Child*. Published for the Nuffield Foundation. New York. Oxford University Press, 1958.
- ¹²Maccoby, E. E.: Television: Its impact on school children. *Pub. Op. Quart.* 15:421-444, 1951.
- ¹³The International Association for Mass Communication Research, Amsterdam: *The Effects of Television on Children and Adults*. Paris. UNESCO, 1964.
- ¹⁴National Center for Health Statistics: Replication, an approach to the analysis of data from complex surveys. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 2-No. 14. Public Health Service, Washington. U.S. Government Printing Office, Apr. 1966.
- ¹⁵Jacobson, A., Kales, A., Lehmann, D., and Zweizig, J. R.: Somnambulism: all night EEG studies. *Science* 148:975-977, 1965.
- ¹⁶Riser, M., and Laboucarie, J.: De certains aspects du somnambulisme. *Toulouse Med. J.* 4:429-434, 1962.
- ¹⁷Challman, R. C.: Factors influencing friendships among preschool children. *Child Develop.* 3:146-158, 1932.
- ¹⁸Hollingshead, A. B.: *Elmtown's Youth*. New York. John Wiley and Sons, 1949.
- ¹⁹Tuddenham, R. D.: Studies in reputation: I. Sex and grade differences in school children's evaluation of their peers. *Psychol. Monogr.* 66, No. 1, 1951.
- ²⁰Feinberg, M. R., Smith, M., and Schmidt, R.: An analysis of expressions used by adolescents at varying economic levels to describe accepted and rejected peers. *J. Genet. Psychol.* 93:133-140, 1958.
- ²¹Tuddenham, R. D.: Studies in reputation: III. Correlates of popularity among elementary school children. *J. Educ. Psychol.* 42:257-276, 1951.
- ²²Northway, M. L.: Outsiders: A study of the personality patterns of children least acceptable to their age mates. *Sociometry* 7:10-25, 1944.
- ²³Smith, G. H.: Sociometric study of best-liked and least-liked children. *Element. Sch. J.* 51:77-85, 1950.
- ²⁴Coopersmith, S.: A method for determining types of self-esteem. *J. Abnorm. and Social Psychol.* 59:87-94, 1959.
- ²⁵Feldhusen, J. F., and Thurston, J. R.: Personality and adjustment of high and low anxious children. *J. Educ. Res.* 56:265-267, 1964.
- ²⁶McCandless, B. R., Castandon, A., and Palermo, D. S.: Anxiety in children and social status. *Child Develop.* 27:385-392, 1956.

²⁷National Center for Health Statistics: Studies of mothers' reports of behavior symptoms in their children, by J. C. Glidewell, in S. B. Sells, ed., *The Definition and Measurement of Mental Health*, PHS Pub. No. 1873, Public Health Service, Washington, U.S. Government Printing Office, 1968, pp. 181-217.

²⁸Davis, E. A.: The development of linguistic skills in twins, singletons with siblings and only children from age five through ten years. *Institute of Child Welfare Monograph Series No. 14*, Minneapolis, University of Minnesota Press, 1937.

²⁹Jersild, A. T.: Emotional development, in L. Carmichael, ed., *Manual of Child Psychology*, New York, John Wiley and Sons, 1954, chapter 14.

³⁰Renshaw, S., Miller, V. L., and Marquis, D.: *Children's Sleep*, New York, Macmillan, 1933.

³¹National Center for Health Statistics: Parity and hypertension. *Vital and Health Statistics*, Series 11-No. 38, DHEW Pub. No. (HSM) 72-1024, Washington, U.S. Government Printing Office, Mar. 1972.

³²McCarthy, P. J., Simmons, W. R., and Losee, G. J.: Replication Techniques for Estimating Variances from Complex Surveys. Paper presented at Joint Session of the Epidemiology and Statistics Sections, APHA, Chicago, Ill., Oct. 18, 1965.

³³Simmons, W. R., and Baird, J. T., Jr.: Pseudo-Replication in the NCHS Health Examination Survey. *Proceedings of the Social Statistics Section of the American Statistical Association*, 1968.

³⁴National Center for Health Statistics: Pseudoreplication, further evaluation and application of the balanced half-sample technique. *Vital and Health Statistics*, PHS Pub. No. 1000-Series 2-No. 31, Public Health Service, Washington, U.S. Government Printing Office, Jan. 1969.



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Table 1. Percent distribution of boys and girls 6-11 years of age by learning speed, according to age started walking, with corresponding standard errors: United States, 1963-65

Age started walking— boys and girls	Learning speed compared with other children							
	Total	Faster	Same	Slower	Un- known	Faster	Same	Slower
	Percent of children					Standard error of percent		
Both sexes-----	100.0	20.2	74.8	4.2	0.8	0.5	0.6	0.4
Age started walking:								
Under 1 year-----	100.0	30.8	67.1	1.8	0.3	0.9	0.8	0.4
1 to 1 1/2 years-----	100.0	10.8	84.4	4.5	0.3	0.5	0.7	0.5
Over 1 1/2 years-----	100.0	8.5	64.0	27.5	-	1.9	3.4	3.1
Boys-----	100.0	16.9	76.7	5.5	0.9	0.8	0.9	0.6
Age started walking:								
Under 1 year-----	100.0	26.6	70.7	2.3	0.4	1.2	1.1	0.5
1 to 1 1/2 years-----	100.0	9.1	84.4	6.1	0.4	0.8	1.2	0.9
Over 1 1/2 years-----	100.0	5.9	62.2	31.9	-	2.4	4.9	3.8
Girls-----	100.0	23.5	72.9	2.9	0.7	0.4	0.5	0.3
Age started walking:								
Under 1 year-----	100.0	34.8	63.6	1.4	0.2	1.2	1.0	0.4
1 to 1 1/2 years-----	100.0	12.6	84.4	2.8	0.2	0.8	0.8	0.4
Over 1 1/2 years-----	100.0	11.5	66.2	22.3	-	3.4	4.6	4.0

Table 2. Percent distribution of boys and girls 6-11 years of age by trouble getting child to bed, according to trouble getting child to sleep, with corresponding standard errors: United States, 1963-65

Trouble getting child to sleep— boys and girls	Trouble getting child to bed					
	Total	Trouble	No trouble	Un- known	Trouble	No trouble
	Percent of children				Standard error of percent	
Both sexes-----	100.0	22.1	77.3	0.6	0.7	0.8
Getting child to sleep:						
Trouble-----	100.0	56.3	43.5	0.2	2.4	2.4
No trouble-----	100.0	17.4	82.6	0.0	0.8	0.8
Boys-----	100.0	21.5	78.1	0.4	1.0	1.0
Getting child to sleep:						
Trouble-----	100.0	54.6	45.0	0.4	2.9	2.9
No trouble-----	100.0	17.5	82.5	-	1.1	1.1
Girls-----	100.0	22.7	76.5	0.8	0.9	1.0
Getting child to sleep:						
Trouble-----	100.0	57.7	42.3	-	2.6	2.6
No trouble-----	100.0	17.3	82.7	0.0	0.9	0.9

Table 3. Percent distribution of boys and girls 6-11 years of age by trouble getting child to bed, according to trouble getting child to take a nap when little, with corresponding standard errors: United States, 1963-65

Trouble getting child to take a nap when little— boys and girls	Trouble getting child to bed					
	Total	Trouble	No trouble	Un-known	Trouble	No trouble
	Percent of children				Standard error of percent	
Both sexes-----	100.0	22.1	77.3	0.6	0.7	0.8
Getting child to nap:						
Trouble-----	100.0	49.0	51.0	-	2.6	2.6
No trouble-----	100.0	18.5	81.4	0.1	0.8	0.8
Boys-----	100.0	21.5	78.1	0.4	1.0	1.0
Getting child to nap:						
Trouble-----	100.0	45.5	54.5	-	3.0	3.0
No trouble-----	100.0	18.4	81.5	0.1	1.1	1.1
Girls-----	100.0	22.7	76.5	0.8	0.9	1.0
Getting child to nap:						
Trouble-----	100.0	52.3	47.7	-	3.0	3.0
No trouble-----	100.0	18.6	81.3	0.1	0.9	0.9

Table 4. Percent distribution of boys and girls 6-11 years of age by trouble getting child to sleep, according to trouble getting child to take a nap when little, with corresponding standard errors: United States, 1963-65

Trouble getting child to take a nap when little— boys and girls	Trouble getting child to sleep					
	Total	Trouble	No trouble	Un- known	Trouble	No trouble
	Percent of children				Standard error of percent	
Both sexes-----	100.0	12.2	87.1	0.7	0.6	0.7
Getting child to nap:						
Trouble-----	100.0	29.7	70.3	0.0	1.6	1.6
No trouble-----	100.0	9.8	90.0	0.2	0.6	0.6
Boys-----	100.0	11.0	88.6	0.4	0.6	0.6
Getting child to nap:						
Trouble-----	100.0	24.9	74.9	0.2	2.3	2.2
No trouble-----	100.0	9.1	90.8	0.1	0.6	0.6
Girls-----	100.0	13.5	85.5	1.0	0.8	0.9
Getting child to nap:						
Trouble-----	100.0	34.2	65.8	-	2.3	2.3
No trouble-----	100.0	10.6	89.1	0.3	0.7	0.7

Table 5. Percent distribution of boys and girls 6-11 years of age by whether sleep is affected by TV, radio, or movies, according to frequency of unpleasant dreams, with corresponding standard errors: United States, 1963-65

Frequency of unpleasant dreams— boys and girls	Sleep affected by TV, radio, or movies					
	Total	Yes	No	Unknown	Yes	No
	Percent of children				Standard error of percent	
Both sexes-----	100.0	27.1	70.0	2.9	1.0	1.1
Dreams unpleasant:						
Frequently-----	100.0	62.6	34.1	3.3	3.6	4.0
Not often-----	100.0	46.3	50.4	3.3	1.3	1.4
Never-----	100.0	11.3	86.7	2.0	0.8	0.9
Boys-----	100.0	27.0	70.1	2.9	0.9	1.0
Dreams unpleasant:						
Frequently-----	100.0	65.4	31.9	2.7	4.0	4.3
Not often-----	100.0	47.2	49.6	3.2	1.5	1.5
Never-----	100.0	10.8	86.9	2.3	0.8	1.0
Girls-----	100.0	27.2	69.8	3.0	1.3	1.4
Dreams unpleasant:						
Frequently-----	100.0	59.2	36.8	4.0	8.6	8.4
Not often-----	100.0	45.6	51.1	3.3	1.5	1.6
Never-----	100.0	11.8	86.4	1.8	1.2	1.2

Table 6. Percent distribution of boys and girls 6-11 years of age by frequency of unpleasant dreams, according to frequency of sleepwalking, with corresponding standard errors: United States, 1963-65

Frequency of sleepwalking— boys and girls	Frequency of unpleasant dreams							
	Total	Frequently	Not often	Never	Unknown	Frequently	Not often	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	1.8	41.8	52.1	4.3	0.1	1.2	1.3
Sleepwalks:								
Frequently-----	100.0	37.8	36.9	*	5.4	7.6	7.9	...
Not often-----	100.0	6.1	69.4	21.6	2.9	1.3	2.3	2.3
Never-----	100.0	1.1	39.0	55.6	4.3	0.1	1.2	1.3
Boys-----	100.0	2.0	41.2	52.0	4.8	0.2	1.2	1.4
Sleepwalks:								
Frequently-----	100.0	34.0	49.0	*	6.1	6.6	8.4	...
Not often-----	100.0	7.0	67.5	21.6	3.9	1.7	2.6	2.4
Never-----	100.0	1.1	38.3	55.9	4.7	0.1	1.2	1.3
Girls-----	100.0	1.6	42.4	52.1	3.9	0.2	1.5	1.5
Sleepwalks:								
Frequently-----	100.0	41.1	26.3	*	4.9	14.0	12.0	...
Not often-----	100.0	5.0	71.7	21.5	1.8	1.2	3.2	3.4
Never-----	100.0	1.0	39.8	55.3	3.9	0.1	1.5	1.5

Table 7. Percent distribution of boys and girls 6-11 years of age by sleeping arrangements at home, according to frequency of sleeping away from home without family, with corresponding standard errors: United States, 1963-65

Frequency of sleeping away from home without family—boys and girls	Total	Sleeping arrangements at home									Un-known
		Sleeps alone in separate room	Shares room with:				Shares bed with:				
			Broth-er	Sis-ter	Par-ent	Other per-son	Broth-er	Sis-ter	Par-ent	Other per-son	
Percent of children											
Both sexes---	100.0	25.2	23.5	18.8	2.5	0.8	10.8	12.6	2.1	0.7	3.0
Sleeps away from home:											
Frequently-----	100.0	38.8	16.3	24.9	1.5	0.4	6.5	8.9	2.2	0.4	0.5
A few times-----	100.0	28.5	25.1	20.6	2.2	0.8	8.4	12.6	1.4	0.5	1.4
Never-----	100.0	19.9	25.6	17.0	3.2	0.8	15.0	14.6	3.0	0.9	1.7
Boys-----	100.0	25.0	40.6	5.4	2.5	0.8	19.9	1.3	1.5	0.5	2.5
Sleeps away from home:											
Frequently-----	100.0	39.9	36.4	3.8	0.5	1.2	16.1	0.7	1.5	0.0	-
A few times-----	100.0	28.4	44.1	5.9	2.1	0.5	16.2	1.4	0.8	0.4	1.3
Never-----	100.0	20.6	41.0	5.4	3.2	0.9	24.8	1.3	2.2	0.6	1.4
Girls-----	100.0	25.4	6.0	32.6	2.5	0.8	1.3	24.3	2.6	0.8	3.7
Sleeps away from home:											
Frequently-----	100.0	38.8	4.0	37.6	2.1	-	0.6	13.8	2.7	0.7	0.8
A few times-----	100.0	28.2	7.9	33.5	2.2	1.0	1.1	22.4	1.9	0.6	1.6
Never-----	100.0	17.5	4.9	31.9	3.1	0.8	2.0	31.6	3.8	1.2	2.2
Standard error of percent											
Both sexes---	...	1.1	0.7	0.9	0.2	0.1	1.0	1.0	0.2	0.1	---
Sleeps away from home:											
Frequently-----	...	2.3	1.4	2.3	0.6	0.2	0.9	1.8	0.6	0.2	---
A few times-----	...	1.4	0.7	1.1	0.3	0.1	0.8	1.2	0.2	0.1	---
Never-----	...	1.2	1.4	1.1	0.5	0.2	1.7	1.2	0.3	0.1	---
Boys-----	...	1.3	1.4	0.4	0.3	0.2	1.8	0.2	0.2	0.1	---
Sleeps away from home:											
Frequently-----	...	3.8	3.8	1.4	0.5	0.7	2.5	0.7	0.6	0.0	---
A few times-----	...	1.7	1.2	0.5	0.4	0.2	1.5	0.4	0.2	0.2	---
Never-----	...	1.4	2.1	0.7	0.5	0.2	2.8	0.2	0.3	0.2	---
Girls-----	...	1.2	0.3	1.7	0.3	0.1	0.3	1.9	0.3	0.2	---
Sleeps away from home:											
Frequently-----	...	2.9	1.2	3.5	0.9	0.0	0.4	2.9	0.7	0.4	---
A few times-----	...	1.6	0.6	2.3	0.3	0.2	0.3	2.1	0.4	0.2	---
Never-----	...	1.4	0.5	2.0	0.6	0.3	0.5	2.6	0.4	0.3	---

Table 8. Percent distribution of boys and girls 6-11 years of age by degree of selectivity with food, according to degree of tension or nervousness, with corresponding standard errors: United States, 1963-65

Degree of tension or nervousness— boys and girls	Degree of selectivity with food									
	Total	Eats nearly all kinds	Dis-likes only a few kinds	Some-what fussy about kinds	Will not eat many kinds	Un-known	Eats nearly all kinds	Dis-likes only a few kinds	Some-what fussy about kinds	Will not eat many kinds
	Percent of children						Standard error of percent			
Both sexes-----	100.0	44.3	31.8	15.8	7.0	1.1	1.3	1.1	0.5	0.6
Degree of tension or nervousness:										
Rather high strung-	100.0	41.2	27.5	18.5	11.4	1.3	1.8	1.6	0.9	1.3
Moderately tense---	100.0	38.6	35.5	18.3	6.8	0.7	2.0	1.4	1.3	0.7
Moderately relaxed-	100.0	47.6	31.7	14.3	5.6	0.8	1.3	1.0	0.6	0.5
Unusually calm and relaxed-----	100.0	52.4	29.1	11.3	6.3	0.8	2.1	2.4	1.3	1.0
Boys-----	100.0	44.7	31.9	15.5	6.7	1.2	1.6	1.1	0.7	0.7
Degree of tension or nervousness:										
Rather high strung-	100.0	44.1	27.1	16.6	10.9	1.3	2.1	1.9	1.7	1.5
Moderately tense---	100.0	39.0	35.9	19.2	5.1	0.8	2.8	1.4	1.7	0.8
Moderately relaxed-	100.0	47.9	31.7	13.5	6.0	0.9	1.6	1.1	0.9	0.6
Unusually calm and relaxed-----	100.0	50.6	29.2	12.2	6.7	1.3	3.1	3.1	2.2	1.4
Girls-----	100.0	43.8	31.7	16.1	7.3	1.1	1.3	1.2	0.7	0.6
Degree of tension or nervousness:										
Rather high strung-	100.0	38.2	28.0	20.6	12.0	1.2	2.5	1.8	1.6	1.7
Moderately tense---	100.0	38.3	35.0	17.3	8.8	0.5	2.0	2.1	1.6	1.1
Moderately relaxed-	100.0	47.2	31.8	15.0	5.3	0.6	1.8	1.4	0.9	0.6
Unusually calm and relaxed-----	100.0	54.3	29.0	10.4	5.9	0.4	2.8	2.8	1.7	1.8

Table 9. Percent distribution of boys and girls 6-11 years of age by number of friends, according to willingness to make new friends, with corresponding standard errors: United States, 1963-65

Willingness to make new friends—boys and girls	Number of friends							
	Total	Only a few	A good number	Many good friends	Un-known	Only a few	A good number	Many good friends
	Percent of children					Standard error of percent		
Both sexes----	100.0	37.4	46.3	15.2	1.1	1.3	1.2	0.8
Making friends:								
Somewhat shy-----	100.0	55.9	36.7	6.0	1.4	1.5	1.6	0.6
About average-----	100.0	37.4	49.7	12.3	0.6	1.7	1.6	1.1
Very outgoing— makes friends easily-----	100.0	28.1	49.0	22.3	0.6	1.6	1.5	0.9
Boys-----	100.0	36.3	47.2	15.6	0.9	1.5	1.4	1.0
Making friends:								
Somewhat shy-----	100.0	56.4	36.5	6.0	1.1	2.1	2.1	1.0
About average-----	100.0	37.7	50.0	12.1	0.2	2.2	2.0	1.4
Very outgoing— makes friends easily-----	100.0	25.5	50.4	23.2	0.9	1.7	2.0	1.2
Girls-----	100.0	38.5	45.5	14.8	1.2	1.4	1.3	1.0
Making friends:								
Somewhat shy-----	100.0	55.4	36.9	6.0	1.7	2.1	2.0	0.8
About average-----	100.0	37.1	49.4	12.5	1.0	1.9	1.8	1.4
Very outgoing— makes friends easily-----	100.0	30.8	47.5	21.4	0.3	1.8	1.4	1.5

Table 10. Percent distribution of boys and girls 6-11 years of age by number of friends, according to ability to get along with other children, with corresponding standard errors: United States, 1963-65

Ability to get along with other children—boys and girls	Number of friends							
	Total	Only a few	A good number	Many good friends	Un-known	Only a few	A good number	Many good friends
	Percent of children					Standard error of percent		
Both sexes----	100.0	37.4	46.3	15.2	1.1	1.3	1.2	0.8
Getting along with others:								
No difficulty— is well liked----	100.0	29.8	47.6	21.9	0.7	1.6	1.4	1.0
As well as most children-----	100.0	41.4	47.9	10.0	0.7	1.4	1.5	0.8
Has difficulty with many chil- dren-----	100.0	74.4	19.3	4.2	2.1	2.3	2.3	1.4
Boys-----	100.0	36.3	47.2	15.6	0.9	1.4	1.4	1.0
Getting along with others:								
No difficulty— is well liked----	100.0	27.7	48.3	23.3	0.7	1.8	1.8	1.5
As well as most children-----	100.0	40.2	49.3	10.0	0.5	1.4	1.5	1.0
Has difficulty with many chil- dren-----	100.0	74.3	18.4	5.0	2.3	2.2	2.2	2.1
Girls-----	100.0	38.5	45.5	14.8	1.2	1.4	1.3	1.0
Getting along with others:								
No difficulty— is well liked----	100.0	31.8	47.0	20.5	0.7	1.7	1.6	1.3
As well as most children-----	100.0	42.6	46.4	10.1	0.9	1.8	1.9	1.2
Has difficulty with many chil- dren-----	100.0	74.7	20.4	3.2	1.7	4.1	3.6	1.4

Table 11. Percent distribution of boys and girls 6-11 years of age by ability to get along with other children, according to degree of temper, with corresponding standard errors: United States, 1963-65

Degree of temper— boys and girls	Ability to get along with other children							
	Total	No diffi- culty— is well liked	As well as most chil- dren	Has diffi- culty with many chil- dren	Un- known	No diffi- culty— is well liked	As well as most chil- dren	Has diffi- culty with many chil- dren
	Percent of children					Standard error of percent		
Both sexes-----	100.0	45.9	49.2	4.3	0.6	1.1	1.1	0.3
Degree of temper:								
Frequent strong temper-----	100.0	33.8	52.7	13.3	0.2	1.7	1.9	0.8
Occasional strong temper-----	100.0	43.7	53.0	3.0	0.3	1.0	1.1	0.5
Mildly angry once in a while-----	100.0	49.5	48.1	2.1	0.3	1.4	1.4	0.4
Hardly ever angry---	100.0	58.9	39.0	1.5	0.6	2.7	2.7	0.4
Boys-----	100.0	43.8	50.9	4.7	0.6	1.1	1.2	0.4
Degree of temper:								
Frequent strong temper-----	100.0	32.4	53.6	13.7	0.3	2.0	2.6	1.3
Occasional strong temper-----	100.0	43.0	53.5	3.0	0.5	1.4	1.7	0.5
Mildly angry once in a while-----	100.0	47.6	50.0	2.1	0.3	2.0	2.0	0.4
Hardly ever angry---	100.0	56.0	41.3	2.3	0.4	3.1	3.1	0.7
Girls-----	100.0	48.1	47.4	3.8	0.7	1.4	1.3	0.4
Degree of temper:								
Frequent strong temper-----	100.0	35.7	51.4	12.7	0.2	2.3	2.6	1.2
Occasional strong temper-----	100.0	44.4	52.3	3.0	0.3	1.3	1.2	0.6
Mildly angry once in a while-----	100.0	51.1	46.4	2.2	0.3	1.5	1.4	0.6
Hardly ever angry---	100.0	61.1	37.3	0.9	0.7	3.4	3.4	0.3

Table 12. Percent distribution of boys and girls 6-11 years of age by frequency of unpleasant dreams, according to fear of being left alone in dark, with corresponding standard errors: United States, 1963-65

Fear of being left alone in dark—boys and girls	Frequency of unpleasant dreams							
	Total	Fre- quent- ly	Not often	Never	Un- known	Fre- quent- ly	Not often	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	1.8	41.8	52.1	4.3	0.1	1.2	1.3
Fear of dark:								
Afraid-----	100.0	3.8	53.5	39.0	3.7	0.6	1.9	2.0
Not afraid-----	100.0	1.2	38.2	56.3	4.3	0.1	1.2	1.3
Boys-----	100.0	2.0	41.2	52.0	4.8	0.2	1.2	1.4
Fear of dark:								
Afraid-----	100.0	4.4	56.1	36.5	3.0	0.9	2.6	2.4
Not afraid-----	100.0	1.3	37.2	56.4	5.1	0.1	1.3	1.5
Girls-----	100.0	1.6	42.4	52.1	3.9	0.2	1.5	1.5
Fear of dark:								
Afraid-----	100.0	3.2	51.3	41.2	4.3	0.7	1.9	2.1
Not afraid-----	100.0	1.1	39.2	56.2	3.5	0.2	1.6	1.6

Table 13. Percent distribution of boys and girls 6-11 years of age by whether sleep is affected by TV, radio, or movies, according to fear of being left alone in dark, with corresponding standard errors: United States, 1963-65

Fear of being left alone in dark—boys and girls	Sleep affected by TV, radio, or movies					
	Total	Yes	No	Unknown	Yes	No
	Percent of children				Standard error of percent	
Both sexes-----	100.0	27.1	70.0	2.9	1.0	1.1
Fear of dark:						
Afraid-----	100.0	40.8	57.0	2.2	1.6	1.7
Not afraid-----	100.0	22.7	74.4	2.8	1.0	1.1
Boys-----	100.0	27.0	70.1	2.9	0.9	1.0
Fear of dark:						
Afraid-----	100.0	43.1	55.4	1.5	2.3	2.4
Not afraid-----	100.0	22.4	74.5	3.1	1.0	1.1
Girls-----	100.0	27.2	69.8	3.0	1.3	1.4
Fear of dark:						
Afraid-----	100.0	38.9	58.3	2.8	2.5	2.4
Not afraid-----	100.0	23.1	74.3	2.6	1.2	1.3

Table 14. Percent distribution of boys and girls 6-11 years of age by sleeping arrangements at home, according to fear of being left alone in dark, with corresponding standard errors: United States, 1963-65

Fear of being left alone in dark—boys and girls	Total	Sleeping arrangements at home									
		Sleeps alone in sepa- rate room	Shares room with:				Shares bed with:				Un- known
			Broth- er	Sis- ter	Par- ent	Other per- son	Broth- er	Sis- ter	Par- ent	Other per- son	
Percent of children											
Both sexes---	100.0	25.2	23.5	18.8	2.5	0.8	10.8	12.6	2.1	0.7	3.0
Fear of dark:											
Afraid-----	100.0	18.8	20.1	19.3	4.4	0.7	12.8	16.5	4.5	0.9	2.0
Not afraid-----	100.0	27.8	25.1	19.2	2.0	0.9	10.3	11.5	1.4	0.6	1.2
Boys-----	100.0	25.0	40.6	5.4	2.5	0.8	19.9	1.3	1.5	0.5	2.5
Fear of dark:											
Afraid-----	100.0	19.0	36.1	6.7	4.3	0.7	25.6	1.9	3.1	0.7	1.9
Not afraid-----	100.0	27.2	42.5	5.2	1.9	0.8	18.6	1.2	1.1	0.5	1.0
Girls-----	100.0	25.4	6.0	32.6	2.5	0.8	1.3	24.3	2.6	0.8	3.7
Fear of dark:											
Afraid-----	100.0	18.6	6.3	30.1	4.4	0.6	1.7	29.0	5.6	1.0	2.7
Not afraid-----	100.0	28.5	6.1	34.6	2.0	0.9	1.3	22.9	1.6	0.8	1.3
Standard error of percent											
Both sexes---	...	1.1	0.7	0.9	0.2	0.1	1.0	1.0	0.1	0.1	---
Fear of dark:											
Afraid-----	...	1.5	1.6	1.4	0.6	0.2	1.3	1.5	0.6	0.2	---
Not afraid-----	...	1.3	0.7	0.9	0.2	0.2	1.0	1.0	0.2	0.1	---
Boys-----	...	1.3	1.4	0.4	0.3	0.2	1.8	0.2	0.2	0.1	---
Fear of dark:											
Afraid-----	...	2.1	2.6	0.8	0.7	0.3	2.5	0.4	0.5	0.3	---
Not afraid-----	...	1.4	1.3	0.5	0.3	0.2	1.8	0.3	0.2	0.1	---
Girls-----	...	1.2	0.3	1.7	0.3	0.1	0.3	1.9	0.3	0.2	---
Fear of dark:											
Afraid-----	...	1.7	1.0	2.1	0.8	0.3	0.6	2.8	0.8	0.3	---
Not afraid-----	...	1.4	0.4	1.9	0.3	0.1	0.3	1.8	0.3	0.2	---

Table 15. Percent distribution of boys and girls 6-11 years of age by degree of tension or nervousness, according to degree of temper, with corresponding standard errors: United States, 1963-65

Degree of temper— boys and girls	Degree of tension or nervousness									
	Total	Rather high strung	Moder- ately tense	Moder- ately re- laxed	Unusu- ally calm and re- laxed	Un- known	Rather high strung	Moder- ately tense	Moder- ately re- laxed	Unusu- ally calm and re- laxed
	Percent of children					Standard error of percent				
Both sexes-----	100.0	17.1	27.5	45.8	8.8	0.8	0.5	0.8	0.7	0.6
Degree of temper:										
Frequent strong temper-----	100.0	42.6	26.8	25.4	4.9	0.3	1.3	1.2	1.6	0.8
Occasional strong temper-----	100.0	15.5	34.8	43.2	6.0	0.5	0.9	1.2	1.1	0.8
Mildly angry once in a while-----	100.0	9.9	24.5	56.2	8.9	0.5	0.6	1.0	1.2	0.8
Hardly ever angry---	100.0	7.2	18.8	52.0	21.3	0.7	1.2	1.9	2.6	1.9
Boys-----	100.0	17.6	29.4	43.3	9.0	0.7	0.6	0.9	0.8	0.9
Degree of temper:										
Frequent strong temper-----	100.0	43.2	27.5	24.0	4.9	0.4	1.8	1.6	2.1	0.7
Occasional strong temper-----	100.0	13.9	36.9	41.8	7.0	0.3	1.2	1.5	1.3	1.1
Mildly angry once in a while-----	100.0	9.9	26.5	54.1	9.1	0.4	0.9	1.7	1.6	1.2
Hardly ever angry---	100.0	6.9	17.9	51.8	22.6	0.8	1.6	1.8	3.0	3.1
Girls-----	100.0	16.6	25.5	48.4	8.7	0.5	0.6	1.0	1.0	0.6
Degree of temper:										
Frequent strong temper-----	100.0	41.8	26.0	27.2	4.9	0.1	1.9	2.1	2.5	1.5
Occasional strong temper-----	100.0	17.4	32.2	44.8	4.9	0.7	1.2	1.5	1.9	0.8
Mildly angry once in a while-----	100.0	10.0	22.7	58.1	8.7	0.5	0.7	1.4	1.5	0.9
Hardly ever angry---	100.0	7.4	19.5	52.1	20.4	0.6	1.6	2.7	3.5	2.3

Table 16. Percent distribution of boys and girls 6-11 years of age by frequency of unpleasant dreams, according to degree of tension or nervousness, with corresponding standard errors: United States, 1963-65

Degree of tension or nervousness—boys and girls	Frequency of unpleasant dreams							
	Total	Frequently	Not often	Never	Unknown	Frequently	Not often	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	1.8	41.8	52.1	4.3	0.1	1.2	1.3
Degree of tension or nervousness:								
Rather high strung-----	100.0	4.9	50.5	39.8	4.8	0.6	1.7	1.8
Moderately tense-----	100.0	1.8	48.2	45.4	4.6	0.3	1.4	1.6
Moderately relaxed-----	100.0	0.9	36.9	58.2	4.0	0.2	1.4	1.4
Unusually calm and relaxed-----	100.0	0.6	31.1	63.5	4.8	0.5	2.5	2.8
Boys-----	100.0	2.0	41.2	52.0	4.8	0.2	1.2	1.4
Degree of tension or nervousness:								
Rather high strung-----	100.0	5.7	48.5	41.0	4.8	0.9	2.7	2.4
Moderately tense-----	100.0	1.8	49.7	44.1	4.4	0.4	1.6	1.8
Moderately relaxed-----	100.0	0.7	35.2	59.4	4.7	0.2	1.6	1.8
Unusually calm and relaxed-----	100.0	0.9	29.8	62.6	6.7	0.8	3.2	3.8
Girls-----	100.0	1.6	42.4	52.1	3.9	0.2	1.5	1.5
Degree of tension or nervousness:								
Rather high strung-----	100.0	3.9	52.8	38.4	4.9	0.7	2.4	2.9
Moderately tense-----	100.0	1.9	46.4	47.0	4.7	0.4	2.0	2.1
Moderately relaxed-----	100.0	1.0	38.6	57.1	3.3	0.3	1.8	1.6
Unusually calm and relaxed-----	100.0	0.4	32.5	64.4	2.7	0.4	2.9	3.0

Table 17. Percent distribution of boys and girls 6-11 years of age by trouble getting child to bed, according to degree of temper, with corresponding standard errors: United States, 1963-65

Degree of temper— boys and girls	Trouble getting child to bed					
	Total	Trouble	No trouble	Un- known	Trouble	No trouble
	Percent of children				Standard error of percent	
Both sexes-----	100.0	22.1	77.3	0.6	0.7	0.8
Degree of temper:						
Frequent strong temper-----	100.0	32.3	67.4	0.3	2.0	2.0
Occasional strong temper-----	100.0	25.1	74.6	0.3	1.0	1.0
Mildly angry once in a while----	100.0	18.0	81.6	0.4	1.0	1.0
Hardly ever angry-----	100.0	12.9	87.0	0.1	1.4	1.4
Boys-----	100.0	21.5	78.1	0.4	1.0	1.0
Degree of temper:						
Frequent strong temper-----	100.0	31.7	68.0	0.3	2.0	2.0
Occasional strong temper-----	100.0	22.7	77.1	0.2	1.4	1.4
Mildly angry once in a while----	100.0	17.7	82.1	0.2	1.5	1.5
Hardly ever angry-----	100.0	11.3	88.5	0.2	1.7	1.8
Girls-----	100.0	22.7	76.5	0.8	0.9	1.0
Degree of temper:						
Frequent strong temper-----	100.0	33.2	66.6	0.2	2.5	2.6
Occasional strong temper-----	100.0	28.0	71.6	0.4	1.4	1.4
Mildly angry once in a while----	100.0	18.3	81.1	0.6	1.2	1.3
Hardly ever angry-----	100.0	14.0	86.0	-	1.8	1.8

Table 18. Percent distribution of boys and girls 6-11 years of age by frequency of sleeping away from home without family, according to ownership and care of pets, with corresponding standard errors: United States, 1963-65

Owning and caring for pets—boys and girls	Frequency of sleeping away from home							
	Total	Fre- quent- ly	A few times	Never	Un- known	Fre- quent- ly	A few times	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	9.1	45.8	42.6	2.5	0.6	1.4	1.6
Owens pet and cares for it:								
Usually-----	100.0	13.7	51.4	32.7	2.2	1.6	1.9	2.2
Not usually but often---	100.0	11.7	48.0	37.1	3.2	1.4	2.6	2.3
Sometimes but not often-----	100.0	9.0	48.8	39.2	3.0	0.9	1.6	1.6
Not at all-----	100.0	6.0	43.3	48.1	2.6	1.2	3.2	3.1
Does not own pet-----	100.0	6.6	41.3	49.8	2.3	0.5	2.0	2.2
Boys-----	100.0	6.7	43.1	47.7	2.5	0.5	1.4	1.7
Owens pet and cares for it:								
Usually-----	100.0	10.3	49.9	37.8	2.0	1.5	2.0	2.5
Not usually but often---	100.0	8.2	45.7	42.9	3.2	1.5	1.8	2.2
Sometimes but not often-----	100.0	5.3	44.6	46.7	3.4	0.8	2.1	2.1
Not at all-----	100.0	4.5	39.2	55.1	1.2	1.6	3.5	3.7
Does not own pet-----	100.0	5.5	38.1	54.0	2.4	0.6	2.2	2.4
Girls-----	100.0	11.4	48.6	37.4	2.6	0.9	1.5	1.6
Owens pet and cares for it:								
Usually-----	100.0	17.9	53.4	26.2	2.5	2.3	2.5	2.4
Not usually but often---	100.0	16.0	50.8	30.0	3.2	2.3	4.5	3.9
Sometimes but not often-----	100.0	12.7	53.0	31.7	2.6	1.5	2.0	1.8
Not at all-----	100.0	7.2	46.5	42.6	3.7	1.9	4.4	4.4
Does not own pet-----	100.0	7.8	44.3	45.7	2.2	0.8	2.1	2.2

Table 19. Percent distribution of boys and girls 6-11 years of age by membership in scouting groups, according to membership in classes or clubs in the arts, with corresponding standard errors: United States, 1963-65

Membership in classes or clubs in the arts— boys and girls	Membership in scouting groups						
	Total	None	One	Two	None	One	Two
	Percent of children				Standard error of percent		
Both sexes-----	100.0	78.1	21.5	0.4	1.2	1.2	0.1
Art groups:							
None-----	100.0	81.5	18.2	0.3	1.1	1.0	0.1
One-----	100.0	59.0	40.2	0.8	2.6	2.6	0.3
Two-----	100.0	51.1	48.2	0.7	6.3	6.2	0.8
Boys-----	100.0	81.8	17.9	0.3	1.4	1.4	0.1
Art groups:							
None-----	100.0	83.5	16.2	0.2	1.4	1.4	0.1
One-----	100.0	66.9	32.8	0.4	2.9	3.0	0.4
Two-----	100.0	59.7	38.3	2.0	9.3	8.8	2.1
Girls-----	100.0	74.2	25.3	0.5	1.4	1.4	0.1
Art groups:							
None-----	100.0	79.2	20.4	0.4	1.1	1.1	0.1
One-----	100.0	55.0	44.0	1.0	3.5	3.5	0.4
Two-----	100.0	46.3	53.7	0.0	6.7	6.7	0.0

Table 20. Percent distribution of boys and girls 6-11 years of age by sleeping arrangements at home, according to membership in classes or clubs in the arts, with corresponding standard errors: United States, 1963-65

Membership in classes or clubs in the arts— boys and girls	Sleeping arrangements at home							
	Total	Sleeps alone in sepa- rate room	Sleeps alone but shares room	Shares bed	Un- known	Sleeps alone in sepa- rate room	Sleeps alone but shares room	Shares bed
	Percent of children					Standard error of percent		
Both sexes-----	100.0	25.2	45.6	26.2	3.0	1.1	1.4	1.9
Art groups:								
None-----	100.0	22.7	46.9	28.7	1.7	1.1	1.7	2.1
One-----	100.0	40.9	44.3	13.7	1.1	2.3	2.1	1.8
Two-----	100.0	53.7	34.2	11.4	0.7	4.5	4.8	3.0
Boys-----	100.0	25.0	49.3	23.2	2.5	1.3	1.4	2.0
Art groups:								
None-----	100.0	23.5	50.1	25.0	1.4	1.3	1.7	2.2
One-----	100.0	39.1	49.8	10.0	1.1	3.8	3.6	1.7
Two-----	100.0	60.7	33.3	6.0	-	7.8	7.2	3.4
Girls-----	100.0	25.4	41.9	29.0	3.7	1.2	1.7	2.0
Art groups:								
None-----	100.0	21.7	43.3	33.0	2.0	1.2	2.0	2.3
One-----	100.0	41.8	41.5	15.6	1.1	2.1	2.2	2.4
Two-----	100.0	49.7	34.7	14.4	1.2	4.5	5.8	3.8

Table 21. Percent distribution of boys and girls 6-11 years of age by frequency of sleeping away from home without family, according to membership in classes or clubs in the arts, with corresponding standard errors: United States, 1963-65

Membership in classes or clubs in the arts— boys and girls	Frequency of sleeping away from home							
	Total	Fre- quent- ly	A few times	Never	Un- known	Fre- quent- ly	A few times	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	9.1	45.8	42.6	2.5	0.6	1.4	1.6
Art groups:								
None-----	100.0	7.8	44.1	45.8	2.3	0.6	1.5	1.8
One-----	100.0	16.1	55.3	24.6	4.0	1.6	2.0	1.4
Two-----	100.0	19.3	57.6	20.8	2.3	3.2	4.6	4.2
Boys-----	100.0	6.7	43.1	47.7	2.5	0.5	1.4	1.7
Art groups:								
None-----	100.0	6.0	42.0	49.7	2.3	0.5	1.6	1.8
One-----	100.0	15.2	52.1	28.8	3.9	2.1	3.0	2.9
Two-----	100.0	8.9	*	26.4	4.0	3.7	...	5.7
Girls-----	100.0	11.4	48.6	37.4	2.6	0.9	1.5	1.6
Art groups:								
None-----	100.0	10.0	46.5	41.2	2.3	0.8	1.7	2.0
One-----	100.0	16.5	57.0	22.4	4.1	2.0	2.2	1.4
Two-----	100.0	25.1	55.9	17.7	1.3	4.7	5.0	4.7

Table 22. Percent distribution of boys and girls 6-11 years of age by frequency of sleeping away from home without family, according to membership in scouting groups, with corresponding standard errors: United States, 1963-65

Membership in scouting groups—boys and girls	Frequency of sleeping away from home							
	Total	Frequent-ly	A few times	Never	Un-known	Frequent-ly	A few times	Never
	Percent of children					Standard error of percent		
Both sexes-----	100.0	9.1	45.8	42.6	2.5	0.6	1.4	1.6
Scouting groups:								
None-----	100.0	7.3	42.7	47.6	2.4	0.5	1.6	1.7
One-----	100.0	15.2	56.9	24.8	3.1	1.4	1.9	1.5
Two-----	100.0	26.4	42.5	31.1	-	12.2	10.1	10.4
Boys-----	100.0	6.7	43.1	47.7	2.5	0.5	1.4	1.7
Scouting groups:								
None-----	100.0	5.4	41.1	51.0	2.5	0.4	1.6	1.8
One-----	100.0	12.5	52.4	32.6	2.4	1.7	2.6	2.4
Two-----	100.0	28.1	21.1	50.9	-	33.7	22.0	28.5
Girls-----	100.0	11.4	48.6	37.4	2.6	0.9	1.5	1.6
Scouting groups:								
None-----	100.0	9.4	44.7	43.7	2.2	0.8	1.7	1.9
One-----	100.0	17.3	60.1	19.0	3.6	1.7	1.8	1.3
Two-----	100.0	25.4	55.4	19.2	-	11.7	12.5	10.8

Table 23. Percent distribution of boys and girls 6-11 years of age by regular family tasks, according to membership in scouting groups, with corresponding standard errors: United States, 1963-65

Membership in scouting groups— boys and girls	Regular tasks assigned						
	Total	None	One	Two	Three or more	Yes, none listed	Un- known
Percent of children							
Both sexes-----	100.0	21.2	15.6	28.4	33.3	1.0	0.5
Scouting groups:							
None-----	100.0	24.4	16.4	27.6	29.9	1.0	0.5
One-----	100.0	10.0	13.1	30.7	45.2	0.8	0.2
Two-----	100.0	7.3	15.1	27.3	50.3	-	-
Boys-----	100.0	22.3	15.6	27.1	33.6	1.1	0.3
Scouting groups:							
None-----	100.0	24.9	16.1	26.8	30.7	1.1	0.4
One-----	100.0	10.6	13.4	28.0	46.8	1.0	0.2
Two-----	100.0	10.6	8.6	38.5	42.3	-	-
Girls-----	100.0	20.0	15.7	29.9	32.9	0.8	0.7
Scouting groups:							
None-----	100.0	23.7	16.6	29.0	29.0	0.9	0.8
One-----	100.0	9.5	13.0	32.7	44.0	0.6	0.2
Two-----	100.0	5.3	19.1	20.6	55.0	-	-
Standard error of percent							
Both sexes-----	...	1.2	1.0	0.9	1.6	0.2	0.1
Scouting groups:							
None-----	...	1.3	1.0	1.0	1.6	0.3	0.1
One-----	...	0.9	1.1	1.4	1.9	0.2	0.1
Two-----	...	5.4	10.1	8.2	9.6	-	-
Boys-----	...	1.3	1.2	1.1	1.6	0.3	0.1
Scouting groups:							
None-----	...	1.3	1.3	1.1	1.7	0.3	0.1
One-----	...	1.5	1.6	2.0	1.9	0.3	0.2
Two-----	...	10.6	25.0	26.5	27.8	-	-
Girls-----	...	1.3	1.0	1.1	1.7	0.2	0.1
Scouting groups:							
None-----	...	1.5	1.1	1.2	1.7	0.3	0.1
One-----	...	1.4	1.1	2.3	2.5	0.2	0.2
Two-----	...	6.6	11.6	9.6	12.0	-	-

APPENDIX I

STATISTICAL NOTES

Sample Design

The sample design for the second cycle of the Health Examination Survey, similar to the one used for the first cycle, was that of a multistage, stratified probability sample of loose clusters of persons in land-based segments. Successive elements dealt with in the process of sampling are primary sampling unit (PSU), census enumeration district (ED), segment, household, eligible child (EC), and, finally, the sample child (SC).

At the first stage, the nearly 2,000 PSU's into which the United States (including Hawaii and Alaska) has been divided and then grouped into 357 strata for use in the Current Population Survey and the Health Interview Survey were further grouped into 40 super-strata for use in Cycle II of the Health Examination Survey. The average size of each Cycle II stratum was 4.5 million persons, and all strata fell between the limits of 3.5 and 5.5 million. Grouping into 40 strata was done in a way that maximized homogeneity of the PSU's included in each stratum, particularly with regard to degree of urbanization, geographic proximity, and degree of industrialization. The 40 strata were classified into four broad geographic regions (each with 10 strata) of approximately equal population and cross-classified into four broad population density groups (each having 10 strata). Each of the 16 cells contained either two or three strata. A single stratum might include only one PSU, only part of a PSU (e.g., New York City, which represented two strata), or several score PSU's.

To take account of the possible effect that the rate of population change between the 1950 and 1960 censuses might have had on health, the 10 strata within each region were further classified into four classes, ranging from those with no increase to those with the greatest relative increase. Each such class contained either two or three strata.

One PSU was then selected from each of the 40 strata. A controlled selection technique was used in which the probability of selection of a particular PSU was proportional to its 1960 population. In the controlled selection an attempt was also made to maximize the

spread of the PSU's among the States. While not every one of the 64 cells in the 4x4x4 grid contributes a PSU to the sample of 40 PSU's, the controlled selection technique ensured the sample's matching the marginal distributions in all three dimensions and being closely representative of all cross-classifications.

Generally, within a particular PSU, 20 ED's were selected with the probability of selection of a particular ED proportional to its population in the age group 5-9 years in the 1960 census, which by 1963 roughly approximated the population in the target age group for Cycle II. A similar method was used for selecting one segment (cluster of households) in each ED. Each of the resultant 20 segments was either a bounded area or a cluster of households (or addresses). All the children in the age range 6-11 who were properly resident at the address visited were EC's. Operational considerations made it necessary to reduce the number of prospective examinees at any one location to a maximum of 200. The EC's to be excluded for this reason from the SC group were determined by systematic subsampling.

The total sample included 7,417 children from 25 different States in the age group 6-11 years with approximately 1,000 at each of the single years of age.

Reliability and Estimation

Measurement processes employed in the survey were highly standardized and closely controlled. Of course this does not mean that the correspondence between the real world and the survey results is exact. Data from the survey are imperfect for three major reasons: (1) results are subject to sampling error, (2) the actual conduct of a survey never agrees perfectly with the design, and (3) the measurement processes themselves are inexact even though standardized and controlled.

The first report on Cycle II⁶ describes in detail the faithfulness with which the sample design was carried out. It notes that out of the 7,417 sample children the 7,119 who were examined—a response rate of 96 percent—gave evidence that they were a highly represent-

active sample of children of this age in the noninstitutional population of the United States. The response levels for the various demographic subgroups—including those for age, sex, race, region, population density, parent's educational level, and family income—show no marked differentials. Hence it appears unlikely that nonresponse could bias the findings much in these respects.

Data for the behavioral variables, which form the primary focus of this report, are, of course, subject to an additional "nonresponse" component due to missing or incomplete data for certain behavioral characteristics among examined sample children. Of the behavioral variables considered in this report, this additional missing data component was greater than 3 percent for only two (marginal) distributions (sleeping arrangements at home and frequency of unpleasant dreams) and typically less than 2 percent.

Although the analytical findings are believed not to be compromised by omissions of this scale, the percentages of "unknown" cases have generally been presented for reader evaluation in the detailed tables of this report and in the precursory report showing the distributions of these variables by sex and age.¹

In the estimation process, data for each sample child are multiplied by a statistical weight so that composite estimates characterize the larger population of which the sample children are representative. The weights used in this inflation process are a product of the reciprocal of the probability of selecting the child, an adjustment for nonresponse cases, and a poststratified ratio adjustment which increases precision by bringing survey results into closer alignment with highly accurate intercensal population estimates by color and sex for single years of age 6-11 prepared independently by the U.S. Bureau of the Census.

In the second cycle of the Health Examination Survey the sample was the result of three stages of selection—the single PSU from each stratum, the 20 segments from each sample PSU, and the sample children from the eligible children. The probability of selecting an individual child is the product of the probabilities of selection at each stage.

Since the strata are roughly equal in population size and a nearly equal number of sample children were examined in each of the sample PSU's, the sample design is essentially self-weighting with respect to the target population; that is, each child 6-11 years old had about the same probability of being drawn into the sample.

The adjustment for nonresponse imputes to nonrespondents the characteristics of "similar" respondents. Here "similar" respondents were judged to be examined children in a sample PSU having the same age (in years) and sex as children not examined in that sample PSU.

The poststratified ratio adjustment used in the second cycle achieved most of the gains in precision which would have been attained if the sample had been drawn from a population stratified by age, color, and sex and made the final sample estimates of population agree exactly with independent controls prepared by the Bureau of the Census for the noninstitutional population of the United States as of August 1, 1964 (approximate midsurvey point), by color and sex for each single year of age 6-11. The weight of every responding sample child in each of the 24 age, color, and sex classes is adjusted upward or downward so that the weighted total within the class equals the independent population control.

Sampling Errors and Tests of Statistical Significance

The probability design of the survey makes possible the calculation of sampling errors. The sampling error is used here to determine how imprecise the survey results may be because they come from a sample rather than from the measurements of all elements in the universe.

The estimation of sampling errors for a study of the type of the Health Examination Survey is difficult for at least three reasons: (1) measurement error and "pure" sampling error are confounded in the data—it is not easy to find a procedure which will either completely include both or treat one or the other separately, (2) estimates of sampling error (standard errors) are obtained from the sample data and are themselves subject to sampling error, which may, of course, occasionally be substantial, (3) the HES survey design is complex (algebraic relationships between parameters of the universe being sampled and standard errors are generally not known) and standard errors must be estimated by computationally involved computer simulation-type techniques.

Standard errors for the statistics presented in this report have been computed by the replication technique described in references 14 and 31-34. In general, this procedure, known as "balanced half-sample replication," averages variability among random subgroups of the total sample to obtain an estimate of the sampling variability of each statistic. The technique produces highly accurate estimates of the sampling variability of a statistic under study, subject to the qualifications referred to in the preceding paragraph—the major qualification being that "measurement" or "observer" variability is reflected to an unknown extent. The measures of sampling errors of statistics estimated by this method may be referred to as "replicate" standard errors or "replicate" variances to reflect the estimation method used. These standard errors are presented with the statistics to which they relate in the

detailed tables of this report. In accordance with usual "large sample" theory, the sampling distribution of the statistic is considered to approach that of a normal curve and the interval estimate of any statistic may be considered the range within one standard error of the tabulated statistic, with 68-percent confidence, or the range within two standard errors of the tabulated statistic, with 95-percent confidence.

The tests of significance in this report make use of Pearson's classic χ^2 test—with modifications to adapt Pearson's original procedure for use with the HES complex sample design. The adaptations, which follow an approach suggested by McCarthy (reference 34), are indicated in the following paragraphs.

A classical χ^2 test setting consists of a simple random sample of n elements, categorized in each of i classes, $i = 1, 2, \dots, k$, of frequency $\hat{X}_i$ so that $\sum_{i=1}^k \hat{X}_i = n$. The variable of classification may be, for example, degree of tension, with $\hat{X}_1$ being children rated as having the highest degree of tenseness according to the parent's evaluation, and $\hat{X}_k$ the number of children classified at the lowest extreme. The observed proportion in each class is $\hat{p}_i = \frac{\hat{X}_i}{n}$, and it is desired, in the simplest case, to test the observed distribution against some hypothesized or "expected" distribution of p_i 's. (Or, in the test as finally extended by R.A. Fisher, the tenseness distribution of boys may be compared with that of girls—and so on for several variables.)

For the classical test, large-sample distribution theory is assumed to apply, and the joint distribution of the $\hat{X}_i$'s (and consequently that of the $(\hat{X}_i - np_i)$'s), is assumed to approach multivariate normal—i.e.:

$$L \{ (\hat{X}_1 - np_1), (\hat{X}_2 - np_2), \dots, (\hat{X}_k - np_k) \} \\ \rightarrow C_1 \exp \{ -\frac{1}{2} (\hat{X} - np)' A^{-1} (\hat{X} - np) \}$$

where A is the variance-covariance (dispersion) matrix of the $\hat{X}_i$, and $(\hat{X} - np)$ the vector of $(\hat{X}_i - np_i)$'s. Since simple random sampling is assumed, the elements of A are those arising from the multinomial distribution—i.e.:

$$\sigma_{ii} = np_i(1-p_i) \quad \sigma_{ij} = -np_i(1-p_i) \quad i \neq j$$

Due to the linear restriction $\sum_{i=1}^k \hat{X}_i = n$, A is a singular matrix of rank $k-1$, and in order to obtain an inverse, the quadratic form of the above distribution must be written in the form $Q_k = (\hat{X} - np)' A^{*-1} (\hat{X} - np)$ where A^* denotes A with the last row and column removed. A^* is, of course, nonsingular and has an inverse.

The heart of Pearson's χ^2 test is his proof that for any set of correlated variates [such as the $(\hat{X}_i - np_i)$] distributed as multivariate normal, the quadratic form of their joint (multivariate normal) distribution is distributed as χ^2 (with $k-1$ degrees of freedom in this

example). Further, the above quadratic form Q_k reduces

$$\text{algebraically to } Q_k = \frac{\sum_{i=1}^k (\hat{X}_i - np_i)^2}{np_i}, \text{ the neat and familiar}$$

statistic which is then compared with the known, tabulated χ^2 distribution.

Three adaptations were made in order to adapt the preceding theory, applicable to a simple random sample, to the complex sample design of the HES.

First, a simple transformation was made to define a set of "effective observed" frequencies (X_i) corresponding to the observed $\hat{X}_i$ in the simple random sampling (SRS) case. That is, in a typical table in this report, we have an observed $\hat{p}_i$ (say the proportion of children rated as "highly nervous or tense" by their parents) which differs from the $\hat{p}_i$ in the SRS case in that the numerator and denominator of $\hat{p}_i$ have been statistically "weighted" to reflect U.S. population totals. For the HES complex design $X_i = \hat{p}_i n$, by definition, and the initial test setting is thus parallel to that of the SRS case, including the linear restriction $\sum_{i=1}^k X_i = n$.

For the HES complex design and large sample, the joint distribution of the $(X_i - np_i)$'s also approaches multivariate normal (although somewhat more slowly than in the SRS case), but it approaches a different multivariate normal than in the SRS case. Say,

$$L \{ (X_1 - np_1), (X_2 - np_2), \dots, (X_k - np_k) \} \\ \rightarrow C_2 \exp \{ -\frac{1}{2} (X - np)' B^{-1} (X - np) \}$$

where B is the dispersion matrix of the X_i for the HES complex sample.

The second modification of classical theory is, then, to make use of the replicate variances and covariances which comprise B . This is straightforward, since replicate standard errors of the $\hat{p}_i$'s are readily available from the detailed tables. For categorized data of this type, the replicate covariances of proportions, simple functions of the weighted correlation coefficients ($r_{p_i p_j}$), may be easily calculated (see, for example, references 31 and 34) and, hence, the covariances of the X_i 's. In other words, the elements of B are the replicate variances and covariances of the X_i 's applicable to the HES complex sample design.

A third modification of classical theory (actually an additional assumption) was made to permit the use of χ^2 for the complex sample. If we write $B = D'AD$ where A and B are the dispersion matrices as defined above, and D is a matrix which reflects the design effect of the HES complex sample (change in the sampling variance from the simple random sampling case), to avoid undefined rank it is necessary to assume that D is a nonsingular matrix. This appears to be a mild and entirely reasonable assumption and is confirmed in a series of tests based on data in this report.

With this latter assumption B is, of course, of the same rank as A ($k-1$ in the example referred to in the SRS case), and a reduced B may be used for the quadratic form in the same way as under simple random sampling. That is, the quadratic form of the limiting multivariate normal distribution of the (X_{i-np}) 's is $Q_e = (X_{i-np})' B^{*-1} (X_{i-np})$ where B^* is the dispersion matrix B with the last row and column removed. This statistic, Q_e , is, then, distributed as χ^2 by the preceding arguments and may be compared with the tabulated χ^2 distribution in the same way as Q_i in the SRS case.

For the complex design, Q_e does not reduce to the simple functions of "observed" and "expected" values as does Q_i . However, this is of little, if any, practical importance. Since the significance test was done by computer, it is quick, easy, and very inexpensive to invert B^* , perform the necessary matrix algebra, and calculate the chi-square statistic directly from the quadratic form for each test. The significance testing was readily programed by the first author using the Univac 1108 system of the National Bureau of Standards.



APPENDIX II

THE QUESTIONNAIRES

CONFIDENTIAL - The National Health Survey is authorized by Public Law 652 of the 84th Congress (70 Stat. 489; 42 U.S.C. 242c). All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to others for any other purposes (22 FR 1687).

FORM APPROVED
BUDGET BUREAU NO. 68-R620-94.6

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL HEALTH SURVEY

HES-256

(1-8)

CHILD'S MEDICAL HISTORY - Parent

NAME OF CHILD (Last, First, Middle)	SEGMENT	SERIAL	COL. NO.
(6-11)			

NOTE: Please complete this form by checking the correct boxes and/or filling in the blanks where applicable.

When you have completed it, keep it until the representative of the Health Examination Survey calls on you within a few days. If there are some questions you do not understand, please complete the others and the person who comes for the form will help you with the ones that were unclear.

16. ABOUT HOW OLD WAS THE CHILD WHEN HE(SHE) FIRST WALKED BY HIMSELF?
- (94) 1 ☐ Under 1 year old 2 ☐ Between 1 and 1½ years old
3 ☐ Over 1½ years old 4 ☐ Don't know
-
17. ABOUT HOW OLD WAS THE CHILD WHEN HE(SHE) SPOKE HIS FIRST REAL WORD?
- 1 ☐ Under 1 year old 2 ☐ Between 1 and 1½ years old
3 ☐ Over 1½ years old 4 ☐ Don't know
-
18. CHILDREN LEARN TO DO THINGS LIKE EATING BY THEMSELVES AND TALKING AT DIFFERENT AGES. DO YOU THINK THIS CHILD WAS ESPECIALLY FAST IN LEARNING TO DO THINGS, ABOUT AVERAGE, OR SOMEWHAT SLOWER THAN OTHER CHILDREN?
- (99) 1 ☐ Faster than other children 2 ☐ About the same 3 ☐ Slower 4 ☐ Don't know
-
22. DOES THE CHILD AT PRESENT EVER SUCK HIS(HER) THUMB OR FINGERS, EITHER DURING THE DAY OR AT NIGHT?
- (40) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
- IF YES, about how often?
- 1 ☐ Almost every day or night 2 ☐ Just once in a while 3 ☐ Don't know
-
24. AT THE PRESENT TIME DOES THE CHILD EVER WET THE BED?
- 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
- IF YES, about how often does this happen?
- 1 ☐ Several times a week 2 ☐ Not every week but several times a month
3 ☐ About once a month 4 ☐ Less often than once a month
-
50. IS THERE ANY PROBLEM WITH THE WAY HE(SHE) TALKS?
- (43) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
- IF YES, what is the problem?
- 1 ☐ Stammering or stuttering? 2 ☐ Lispering? 3 ☐ Hard to understand?
- 4 ☐ Something else? What is that? _____

Here are some questions about your child's sleeping habits.

57. ABOUT WHAT TIME DOES HE(SHE) USUALLY GO TO BED ON NIGHTS WHEN NEXT DAY IS A SCHOOL DAY?
- (94-99) _____ P.M. 01 ☐ No usual time 02 ☐ Don't know

58. DO YOU FEEL THAT WATCHING OR HEARING CERTAIN KINDS OF TV OR RADIO PROGRAMS OR SEEING CERTAIN KINDS OF MOVIES MAKES ANY DIFFERENCE IN HOW WELL YOUR CHILD GETS TO SLEEP OR SLEEPS?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

IF YES, what kinds of programs or movies? _____

59. DOES HE(SHE) HAVE BAD (UNPLEASANT) DREAMS OR NIGHTMARES?

1 ☐ Yes, frequently 2 ☐ Yes, but not often 3 ☐ Never 4 ☐ Don't know

60. DOES HE(SHE) WALK IN HIS(HER) SLEEP?

1 ☐ Yes, frequently 2 ☐ Yes, but not often 3 ☐ Never 4 ☐ Don't know

61. HAS HE(SHE) SLEPT OVERNIGHT AT A FRIEND'S HOUSE WITHOUT YOU OR OTHER MEMBERS OF YOUR FAMILY BEING THERE?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

IF YES, about how often?

1 ☐ Frequently 2 ☐ A few times

62. AT HOME, NOW, WHICH OF THESE DESCRIBE YOUR CHILD'S USUAL SLEEPING ARRANGEMENTS?

(61)

1 ☐ Sleeps alone in separate room

Sleeps in separate bed in room shared with another person

2 ☐ With brother 3 ☐ With sister 4 ☐ With parent 5 ☐ With other person

Shares bed with another person

6 ☐ With brother 7 ☐ With sister 8 ☐ With parent 9 ☐ With other person

63. DOES YOUR CHILD SAY HE(SHE) IS AFRAID TO BE LEFT ALONE IN THE DARK?

(62)

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Health Survey

Form Approved
Budget Bureau No. 68-R620-S4.6

Child's Medical History - Interviewer (1-5) _____

NAME OF CHILD (Last, First, Middle)	SEGMENT	SERIAL	COL. NO.
(6-11)			

HES-257

4. How many definite meals were there yesterday where the child sat down with others for a period of eating, and which meals were they?
- _____
- _____

5. Which one of the statements in each of these sets best describes _____?

- a. (1) ☐ Eats too much (2) ☐ Usually eats enough (3) ☐ Doesn't eat enough
- b. (1) ☐ Eats nearly all kinds of food
- (2) ☐ Eats most kinds of foods, dislikes a few kinds
- (3) ☐ Somewhat fussy about kinds of food he (she) eats
- (4) ☐ Very fussy about food; won't eat many things
- c. (1) ☐ On most days, eats two or more meals with others in the family
- (2) ☐ On most days, eats one meal with others in the family
- (3) ☐ On most days, doesn't eat any of his (her) meals with other members of the family

9. Does _____ have certain tasks as jobs he (she) is supposed to do regularly just as part of the family?

☐ Yes ☐ No

- a. If yes, list them (up to 3 tasks).
- _____
- _____
- _____

10. Does he (she) have a pet? ☐ Yes ☐ No

- a. If yes, does he (she) take care of it?

☐ Usually ☐ Sometimes but not often

☐ Not usually but often ☐ Not at all

I would like to ask a few questions about _____'s friends and playmates.

11. Does he (she) have
☐ a. Only a few ☐ b. A good number ☐ c. Very many other children who are good friends?
12. Are his (her) friends mostly
☐ a. Older ☐ b. About the same age as he is? ☐ c. Younger
13. How many of his (her) close friends do you know by sight and by first and last name?
☐ a. All ☐ b. Most all ☐ c. Quite a number ☐ d. Only a few
14. When it comes to meeting new children and making new friends is _____
☐ a. Somewhat shy ☐ b. About average willingness
☐ c. Very outgoing - makes friends easily
15. How well would you say he gets along with other children?
☐ a. No difficulty; is well liked
☐ b. As well as most children
☐ c. Has difficulty with many children
16. Has _____ ever "run away from home" -- that is, disappeared at a time when you thought this is what he (she) might be doing and stayed away so long that you had to have people start searching or looking for him (her)?
☐ Yes ☐ No
a. If yes, how often has this happened? _____
b. If yes, what was the reason? _____
17. Has anything ever happened that seemed to seriously upset or disturb your child?
☐ Yes ☐ No
a. If yes -- Tell me about it. _____

b. How old was he (she) at the time? _____
18. With respect to how relaxed or how tense or nervous your child is, would you rate him (her)
a. ☐ Rather high strung, tense and nervous.
b. ☐ Moderately tense.
c. ☐ Moderately relaxed.
d. ☐ Unusually calm and relaxed.

19. With respect to your child's temper or his (her) getting angry, would you rate him (her)

- a. ☐ Has a very strong temper, loses it easily.
- b. ☐ Occasionally shows a fairly strong temper.
- c. ☐ Gets angry once in a while but does not have a particularly strong temper.
- d. ☐ Hardly ever gets angry or shows any temper.

20. Aside from regular classes in school, does _____ take any special lessons or classes (e.g., music, dance, athletics)?

- ☐ Yes ☐ No ☐ Don't know

IF YES: What are they? _____

21. Does _____ belong to any clubs or group activities such as Cub Scouts, Brownies, etc.?

- ☐ Yes ☐ No ☐ Don't know

IF YES: What ones? _____

22. About how much time does your child spend on the usual day away from home when you do not know definitely where he (she) is?

- a. ☐ None at all
- b. ☐ Some but less than 2 hours
- c. ☐ Between 2 and 4 hours
- d. ☐ More than 4 hours

23. About how much time would you guess your child spends on the usual day doing each of the following:

(Enter number of hours or fraction of hours or zero as appropriate)

- a. Watching television? _____
- b. Listening to radio? _____
- c. Reading newspapers, comics, magazines? _____
- d. Reading books (except comic books)? _____
- e. Playing with friends? _____
- f. Playing by himself? _____
- g. Working (doing chores, etc.)? _____

24. Have you ever had, over a considerable period of time, a good bit of trouble in getting your child to

- a. Go to bed when you thought it was bedtime ☐ Yes ☐ No
- b. Get to sleep after he (she) had gone to bed ☐ Yes ☐ No
- c. Take a nap when he (she) was little ☐ Yes ☐ No

— — ○ ○ ○ — —

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